Incident Location Tool 4.X

User's Manual

Iowa Department of Transportation

CTRE
Center for Transportation
Research and Education

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1.0 INSTALLATION AND CONFIGURATION

1.1 Installation Procedure

1.1.1 Requirements

The CTRE **Incident Location Tool** can be installed from a CD-ROM or over a network. The program runs on Windows 9X, NT, 2000, and XP operating systems and may require up to XX megabytes of free disk space. The CTRE **Incident Location Tool** functions as an extension of the Iowa Department of Transportation's Traffic and Criminal Software (TraCS). Please consult TraCS documentation for information on how to start the **Incident Location Tool** from within TraCS.

1.1.2 Setup

Double click ***LOCTOOL.EXE*** on the CD-ROM setup disk. A screen will appear as shown in Figure 1.1

ILT 4.2.0 Setup
Welcome to the ILT 4.2.0 Installation Wizard
It is strongly recommended that you exit all Windows programs before running this setup program.
Click Cancel to quit the setup program, then close any programs you have running. Click Next to continue the installation.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
< Back
Next >
Cancel

Figure 1.1 CTRE Location Tool Setup

Click the **Next** button. A screen will appear allowing you to enter information to personalize your installation. This screen is shown below in Figure 1.2.

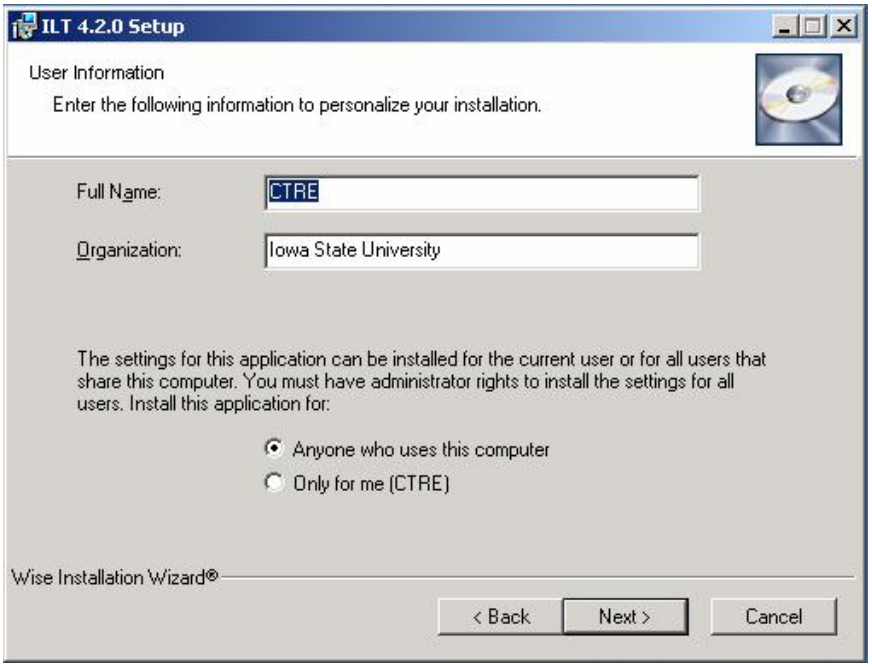

ILT 4.2.0 Setup
User Information
Enter the following information to personalize your installation.
Full Name:
CTRE
Organization:
Iowa State University
The settings for this application can be installed for the current user or for all users that share this computer. You must have administrator rights to install the settings for all users. Install this application for:
Anyone who uses this computer
Only for me (CTRE)
Wise Installation Wizard®
< Back
Next >
Cancel

Figure 1.2 User Information

After you are satisfied click the **Next** button to continue. You will receive a message (see Figure 1.3) allowing you to change the directory that **Incident Location Tool** will be installed in OR to begin the installation using the default directory. It is suggested that you use the default directory. To do this, simply press the **Next** button on the screen.

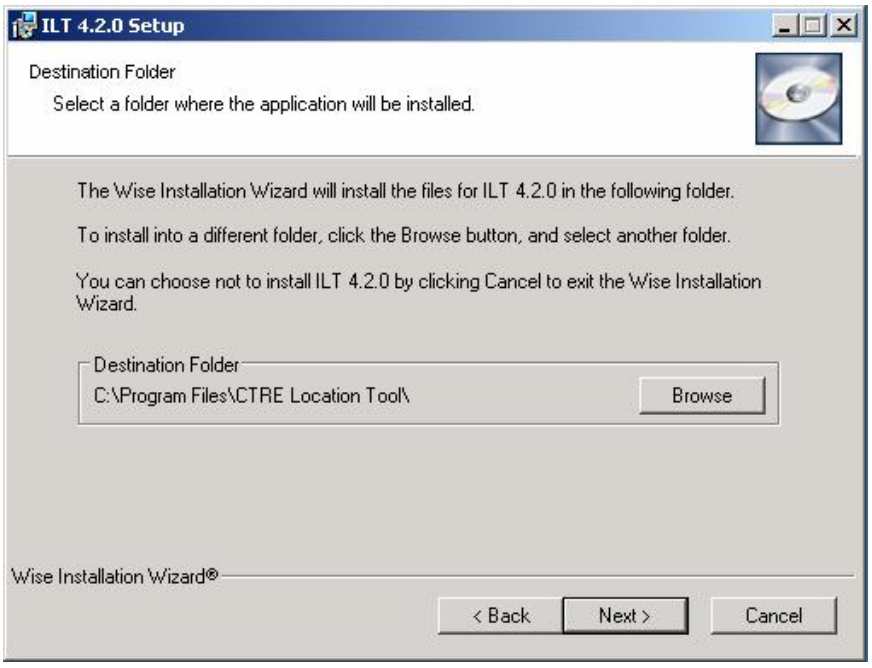

ILT 4.2.0 Setup
Destination Folder
Select a folder where the application will be installed.
The Wise Installation Wizard will install the files for ILT 4.2.0 in the following folder.
To install into a different folder, click the Browse button, and select another folder.
You can choose not to install ILT 4.2.0 by clicking Cancel to exit the Wise Installation Wizard.
Destination Folder
C:\Program Files\CTRE Location Tool\
Browse
Wise Installation Wizard®
< Back
Next >
Cancel

Figure 1.3 Destination Folder

You will then be asked to select a state to install as shown in Figure 1.4. After selecting the proper state press the **Next** button to continue.

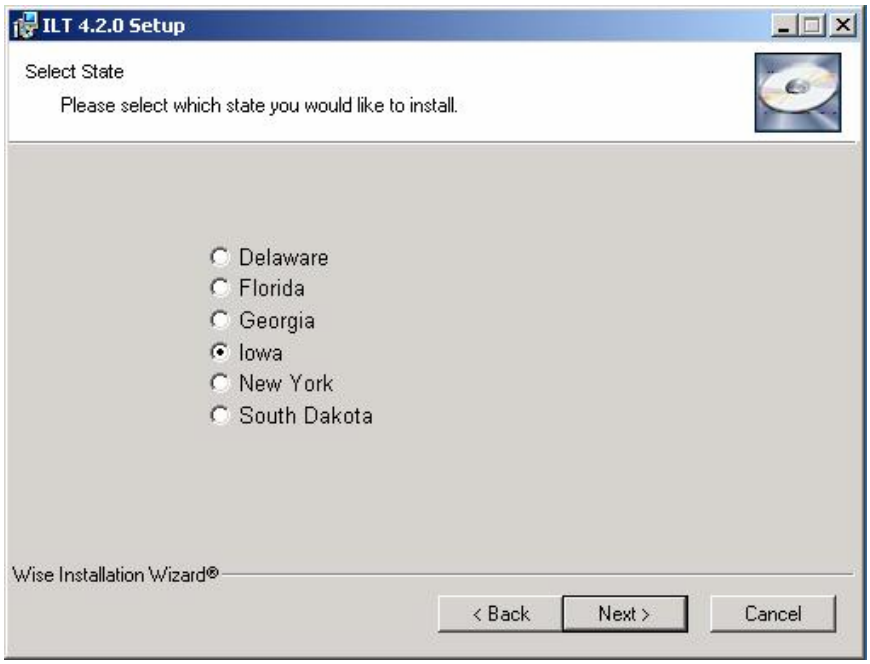


Figure 1.4 State Selection

A message will appear (see Figure 1.5) allowing you to choose two additional features to install. Select the desired features. Click the **Next** button to continue.

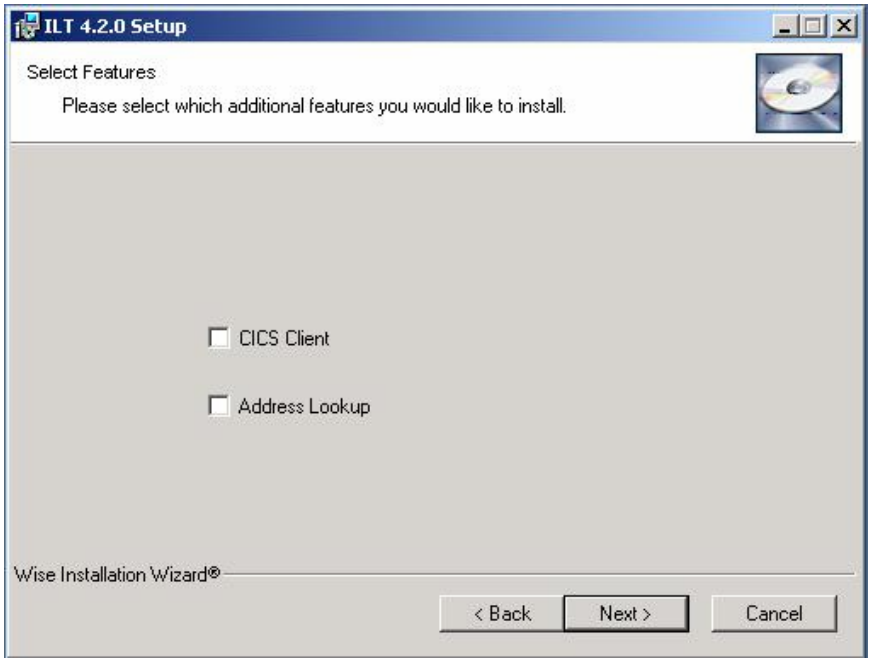


Figure 1.5 Additional Features

A message will appear (see Figure 1.6) allowing you to start the installation or move back to change setup information. Once you are ready to start the installation press the **Next** button.

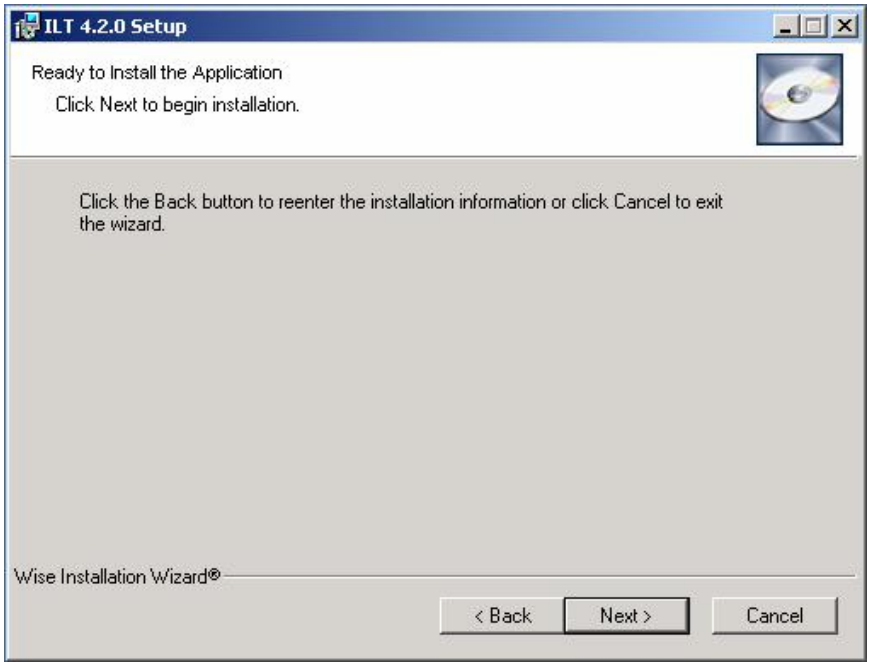

ILT 4.2.0 Setup
Ready to Install the Application
Click Next to begin installation.
Click the Back button to reenter the installation information or click Cancel to exit the wizard.
Wise Installation Wizard®
< Back
Next >
Cancel

Figure 1.6 Begin Installation

During the installation a message will appear showing the progress of installation as shown in Figure 1.7.

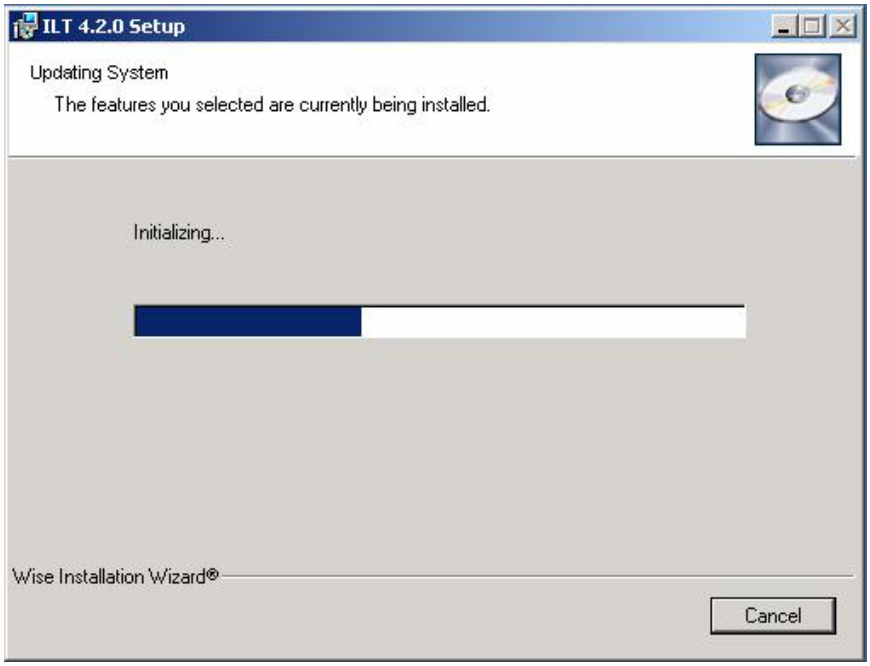


Figure 1.7 Installation Progress

You will know the installation was successful by seeing the message shown in Figure 1.8.

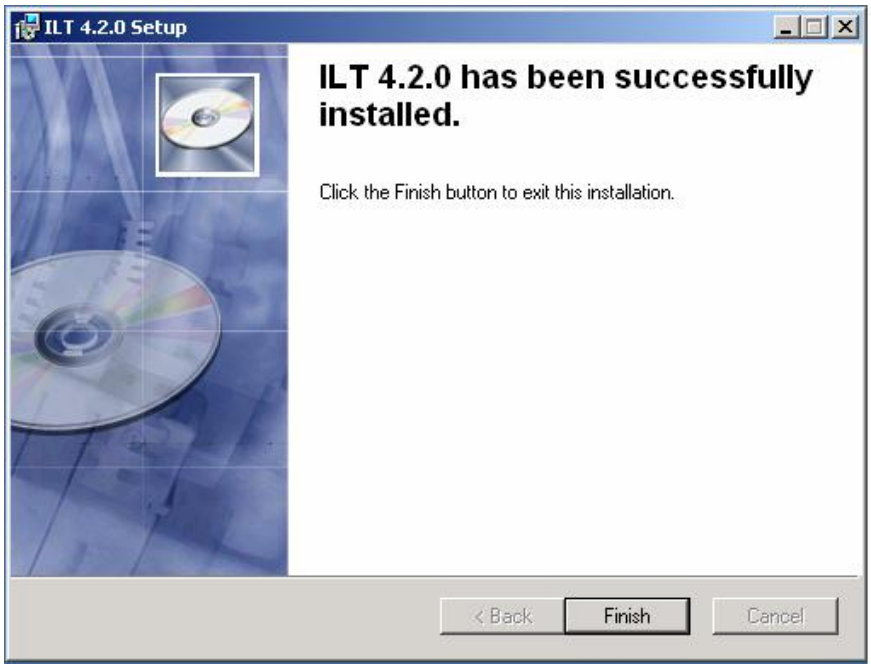


Figure 1.8 Installation Successful

1.1.3 Restart Message

If your operating system is missing certain system files or has old versions of certain files, the installation may ask you to restart the machine and run *setup.exe* again. This does not mean that there is anything wrong with your machine or with the installation. It indicates that the **Incident Location Tool** requires additional or more recent files; these will be installed automatically. The new files will be activated upon restart.

1.1.4 Application Maintenance

If an installation is already present (see Figure 1.9) the following message will appear. Three options are available. You can **Modify** application features; **Repair** missing or corrupt files, registry keys, and shortcuts; or **Remove** the application from your machine.

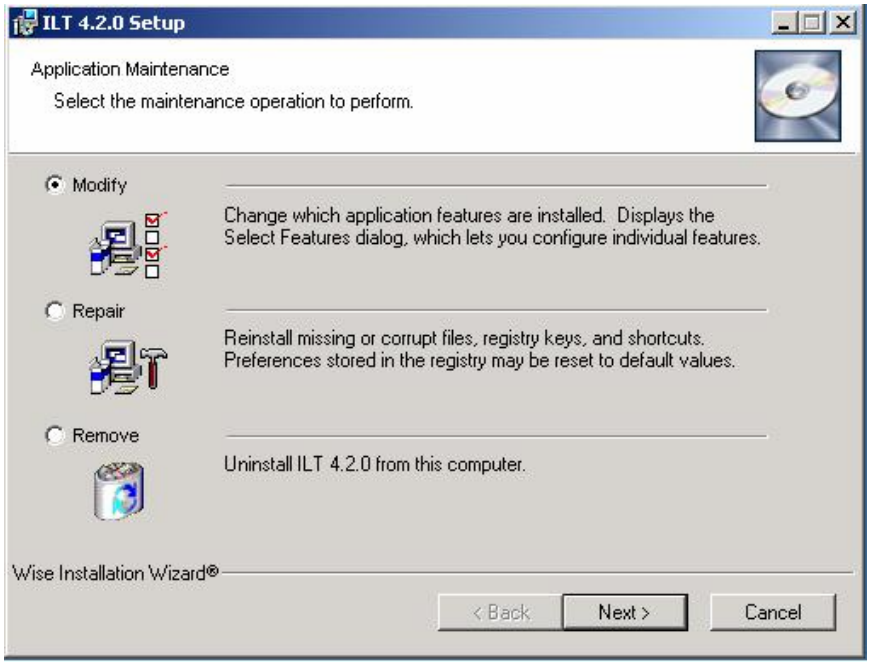

ILT 4.2.0 Setup
Application Maintenance
Select the maintenance operation to perform.
Modify
Change which application features are installed. Displays the Select Features dialog, which lets you configure individual features.
Repair
Reinstall missing or corrupt files, registry keys, and shortcuts. Preferences stored in the registry may be reset to default values.
Remove
Uninstall ILT 4.2.0 from this computer.
Wise Installation Wizard®
< Back
Next >
Cancel

Figure 1.9 Application Maintenance

1.1.5 Uninstalling

Double click ***LOCTOOL.MSI*** on the CD-ROM setup disk. A message (see Figure 1.9) will appear on the screen. Select the **Remove** option and press the **Next** button. A message will appear (see Figure 1.10) to confirm the removal of the application. Press the **Next** button to continue with uninstalling.

ILT 4.2.0 Uninstall
ILT 4.2.0 Uninstall
This will remove ILT 4.2.0 from your machine. Are you sure you want to continue?
Click the Next button to remove the application.
Click the Cancel button to exit the uninstall process.
< Back
Next >
Cancel

Figure 1.10 Application Uninstall

A successful uninstall will be confirmed by seeing the message shown in Figure 1.11.

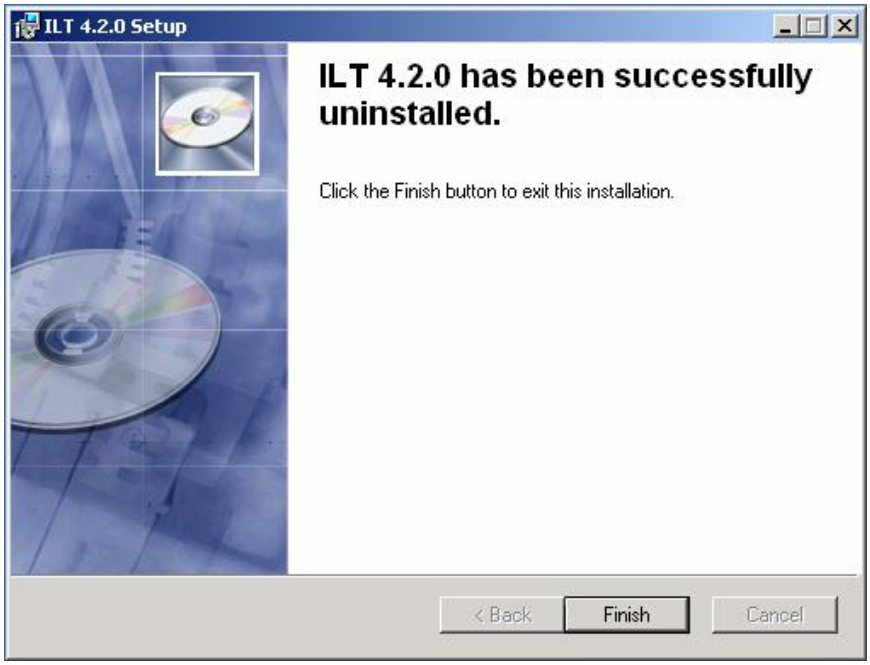


Figure 1.11 Successful Uninstall

1.2 Configuring Geography

1.2.1 First-time Configuration

The first time you launch the **Incident Location Tool** from TraCS (see TraCS documentation for how to do this), you may get a message (see Figure 1.12) prompting you to "Setup Geography," the process by which the county data files are installed into the map data folder.

Figure 1.12 Geography Setup

Press **OK** to continue. If the program has difficulty finding the source directory that contains the statewide map files, you will be prompted (see Figure 1.13) to help locate the directory (on the CD drive, network, or local machine).

Figure 1.13 Proceed to Locate Geography

Press **OK** to continue. You must now choose from the following options (see Figure 1.14).

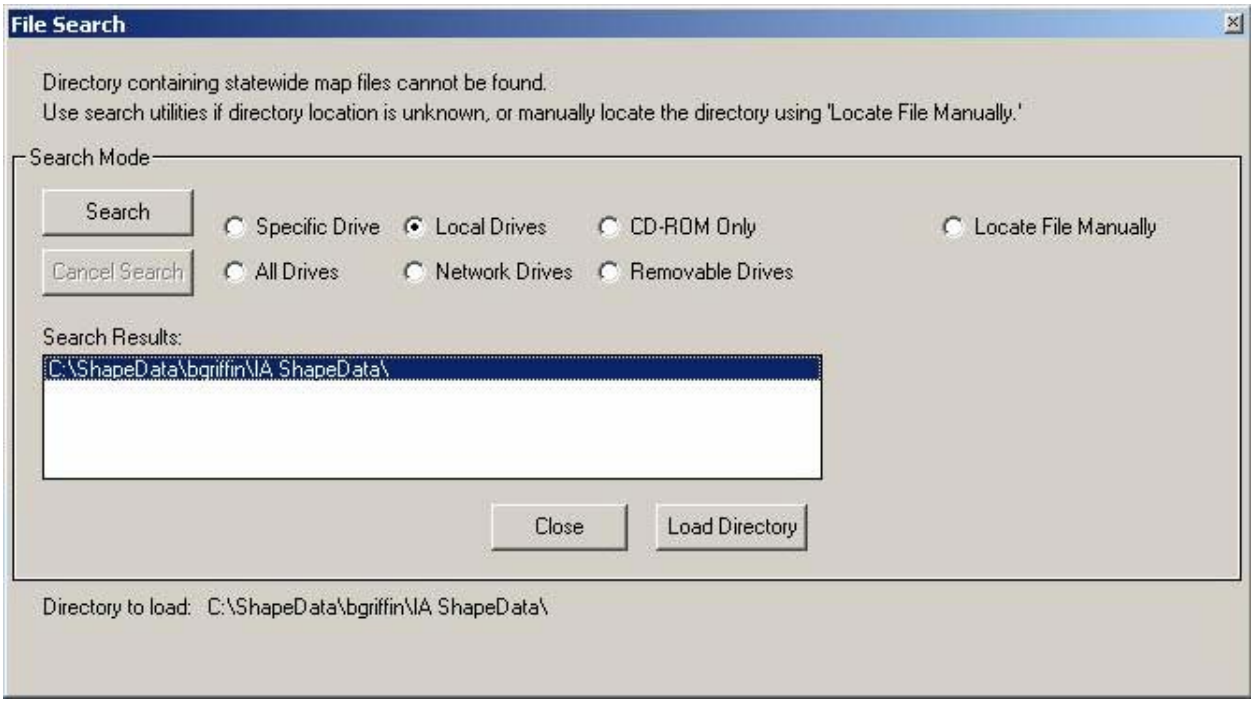


Figure 1.14 File Search

If the directory location is unknown, search drives by choosing appropriate option and clicking **Search**. Once the file has been obtained using the search feature, you choose the appropriate file and select **Load Directory**. If the file is known, you may select **Locate File Manually** and then point to the appropriate directory using the dropdown menu. It is important to remember that in order to load the file, the folder must appear to be open as in Figure 1.15.

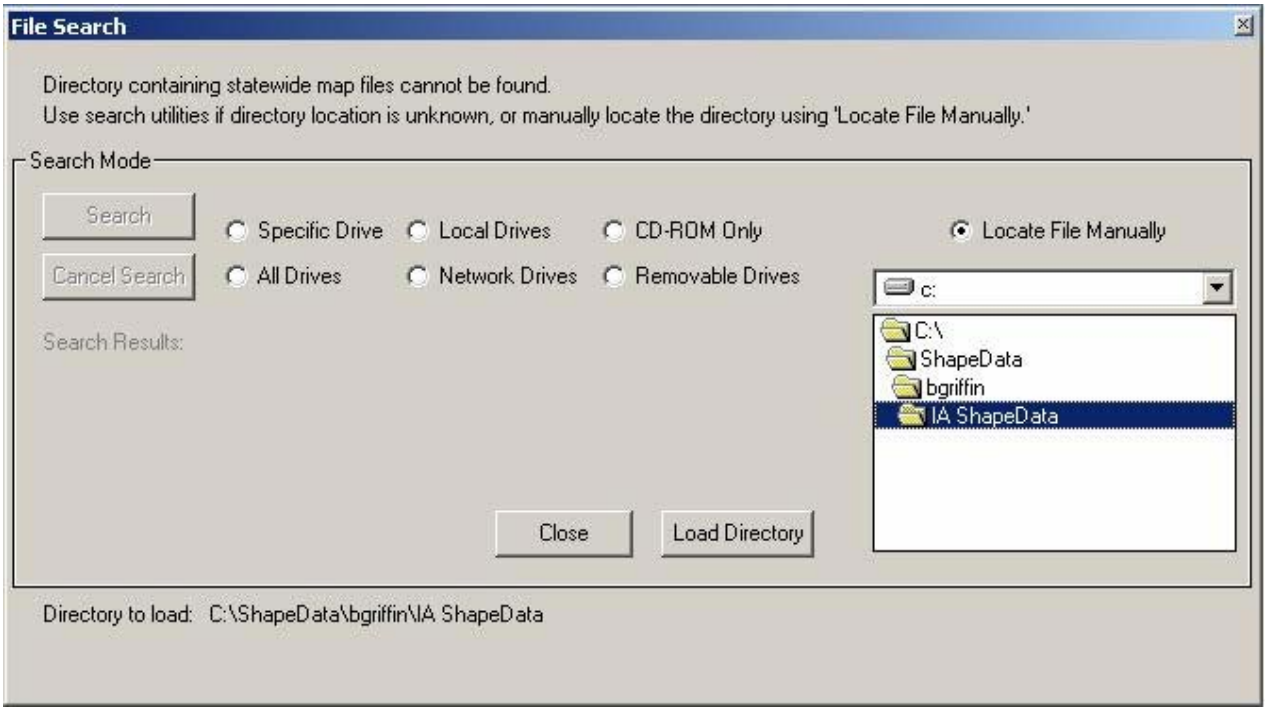


Figure 1.15 Manual Location of Directory

You should then see the **Geography Loader** map like the one in Figure 1.16.

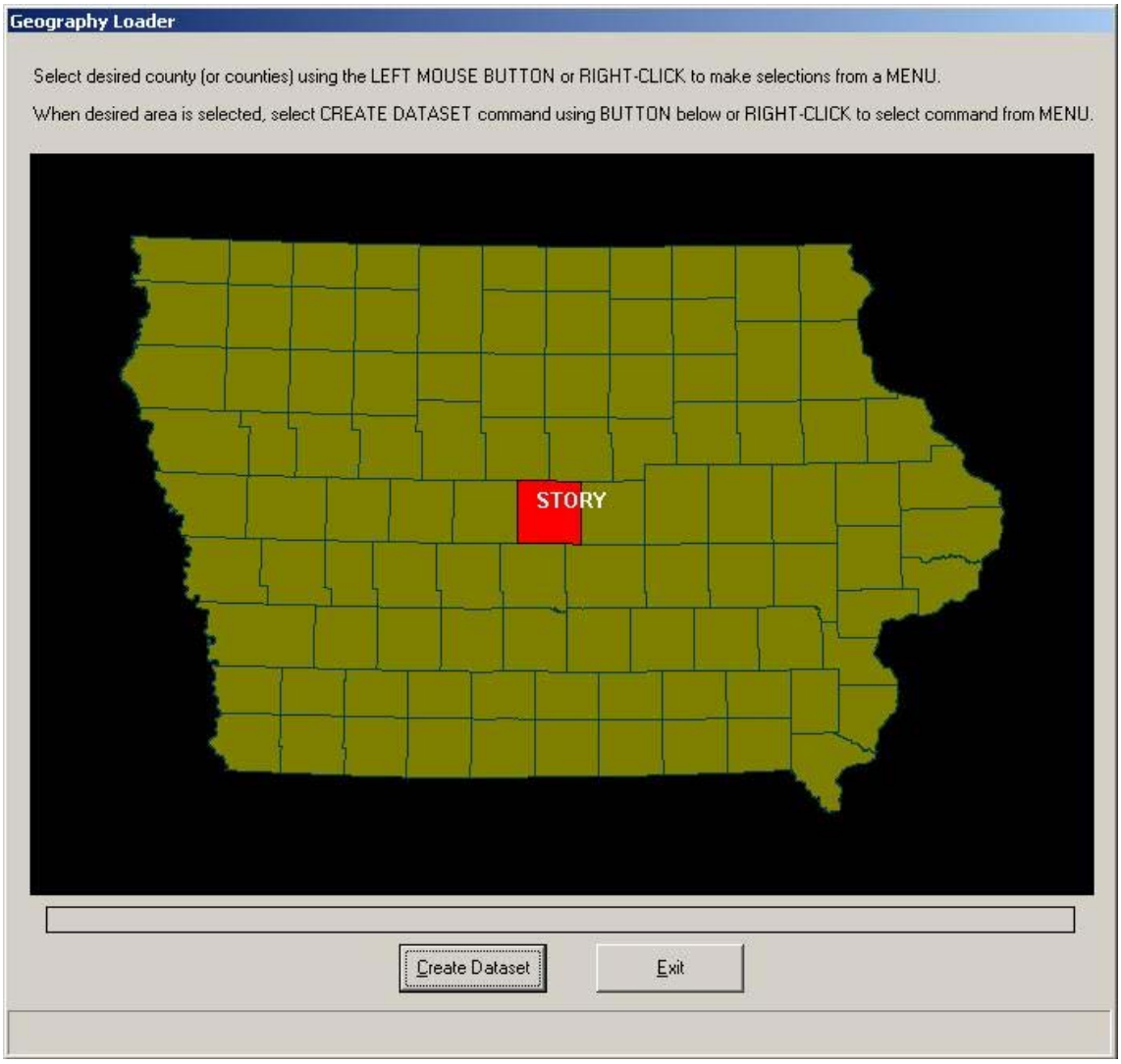

Geography Loader
Select desired county (or counties) using the LEFT MOUSE BUTTON or RIGHT-CLICK to make selections from a MENU.
When desired area is selected, select CREATE DATASET command using BUTTON below or RIGHT-CLICK to select command from MENU.
STORY
Create Dataset
Exit

Figure 1.16 Geography Configuration Map

By running the mouse pointer over the map, the counties will highlight yellow and their names will appear. Click on the county or counties whose data you wish to use. They will turn red on the map. To deselect, click again, the county will turn back to the previous color.

Click the right mouse button to access the following drop down menu shown in Figure 1.17.

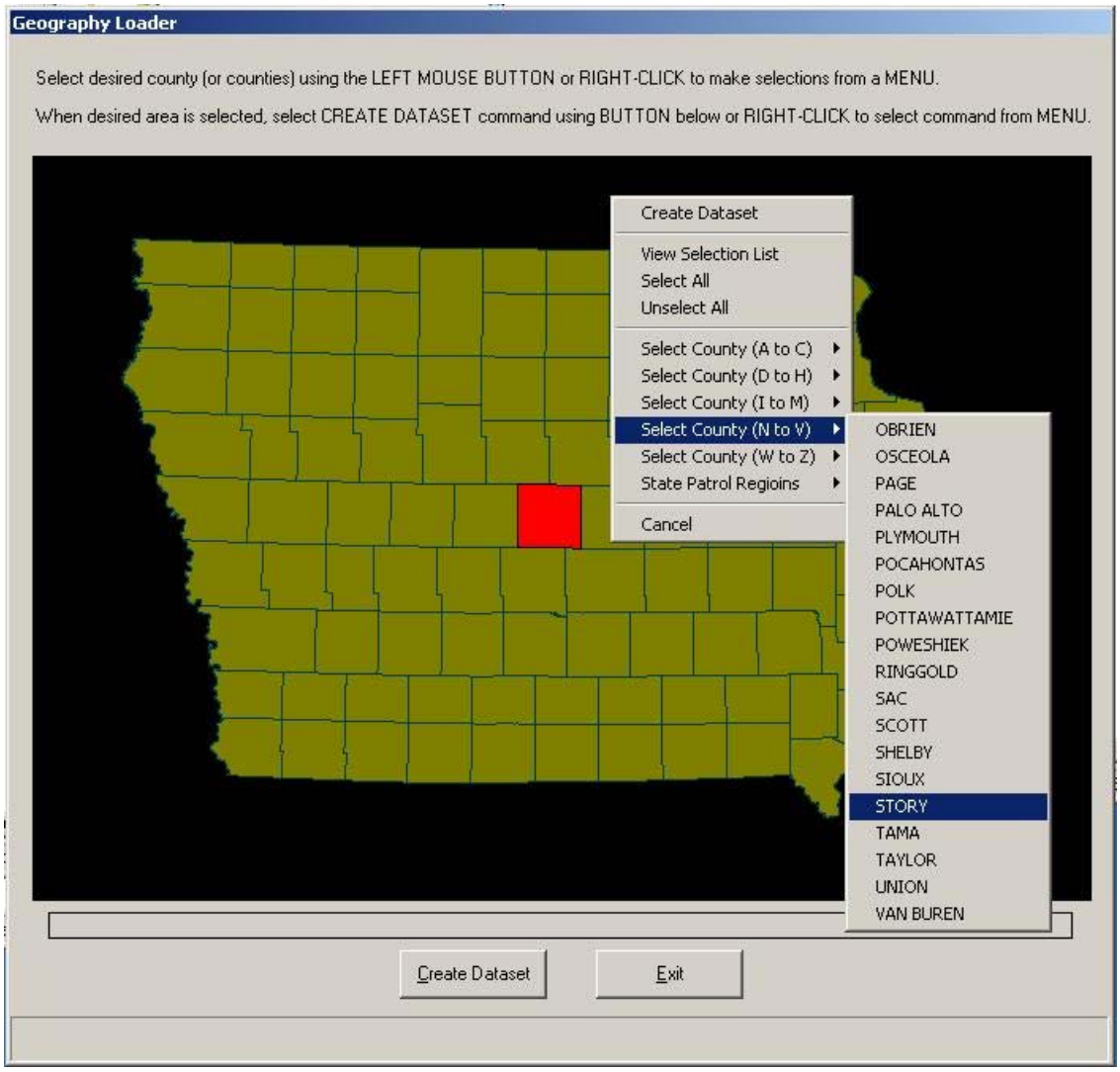


Figure 1.17 Selecting a County

If you do not know the map location of a county, they may be selected by choosing the appropriate **Select County** option on the drop down menu. This will provide an alphabetical listing of counties to choose from (see Figure 1.17). County regions may also be selected by moving the pointer over **Select Patrol Regions**. A list showing the regions will appear and may be selected from as shown below in Figure 1.18.

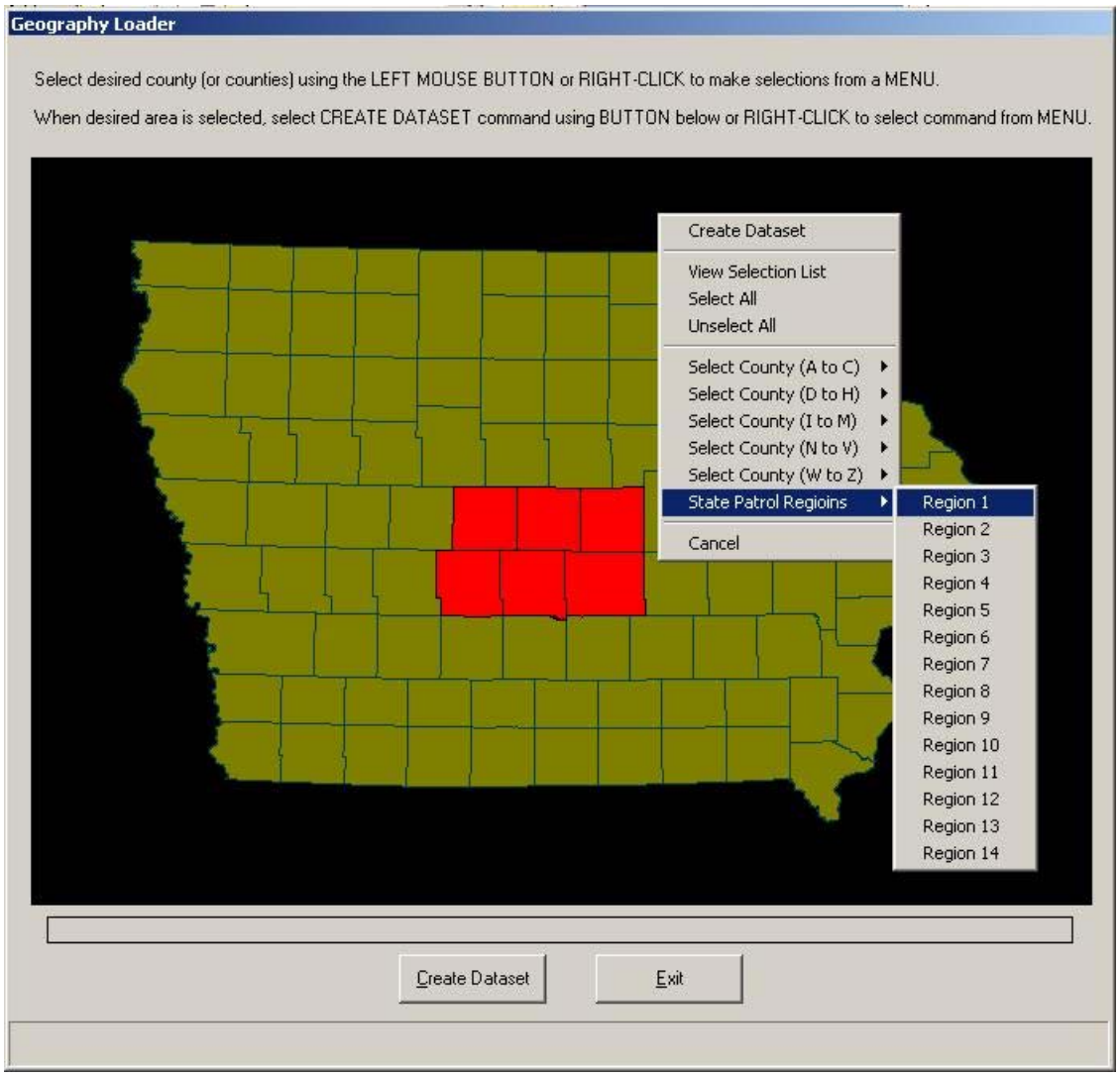


Figure 1.18 Selecting a Patrol Region

A list of the selected counties and or regions may be viewed by selecting **View Selection List** from the drop down menu. A list will appear as shown below in Figure 1.19.

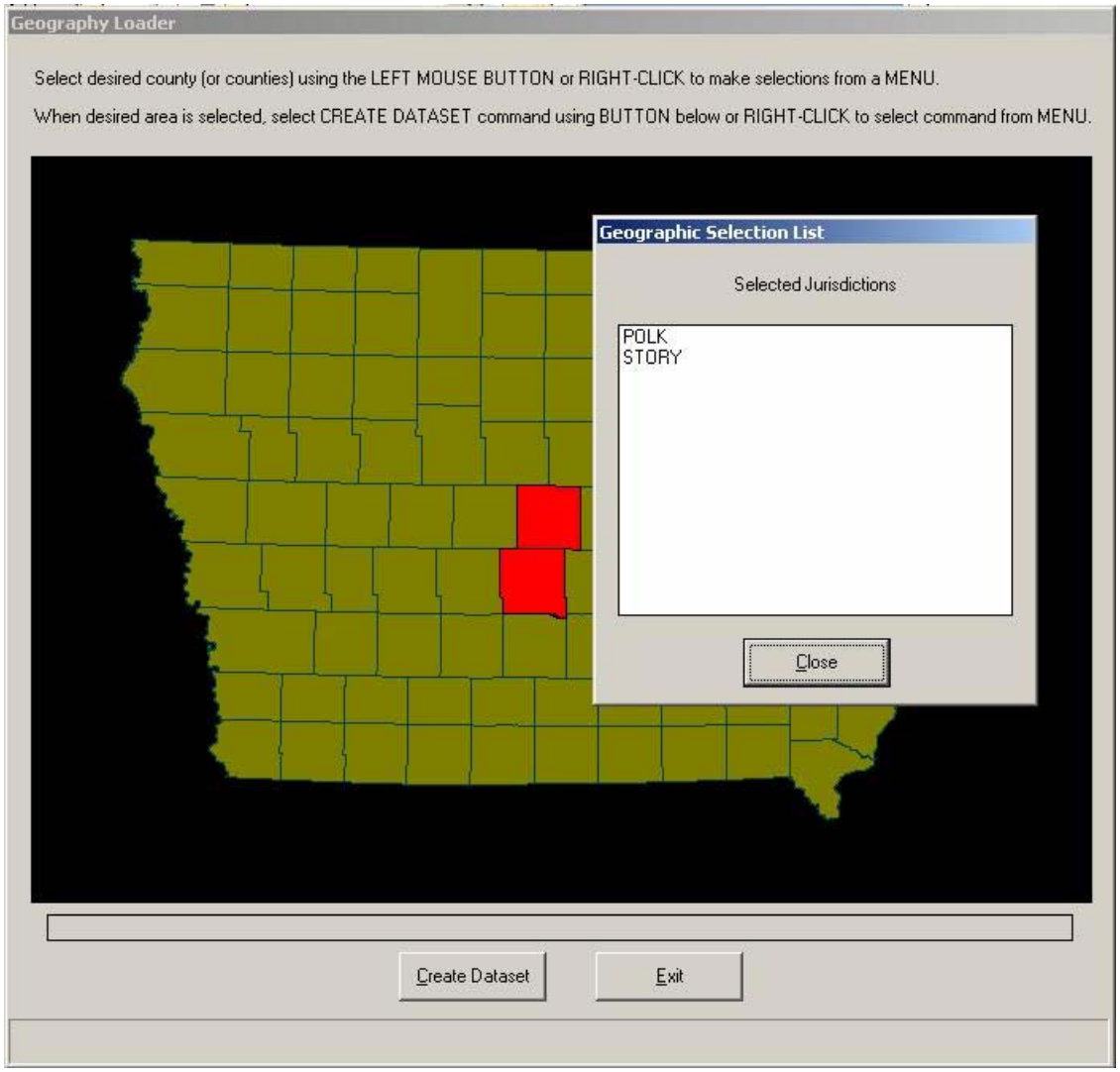

Geography Loader
Select desired county (or counties) using the LEFT MOUSE BUTTON or RIGHT-CLICK to make selections from a MENU.
When desired area is selected, select CREATE DATASET command using BUTTON below or RIGHT-CLICK to select command from MENU.
Geographic Selection List
Selected Jurisdictions
POLK
STORY
Close
Create Dataset
Exit

Figure 1.19 Geographic Selection LIst

To deselect all counties, select **Unselect All** from the menu. To select all counties, select **Select All**. Due to database size and performance reasons, it is strongly recommended that **Incident Location Tool** never load all counties. After the desired counties are selected select **Create Dataset** to load the **Map Window** with the selected geography. This can be done directly from the **Geography Loader** window or from the drop down menu. The relevant map data will be copied from the data source directory to the **ShapeData** folder located in the installation directory. This may take several minutes, depending on the amount of data and the speed of your machine.

1.2.2 Geography Reconfiguration

You can reconfigure your geography at any time as long as you have access to the source data directory with the statewide map files. Go to the **Tools** pull-down menu on the top **Menu Bar** and select **Setup Geography**, as in Figure 1.20. The **Geography Loader** map will appear.

Figure 1.20 Setup Geography in Tools pull-down menu

2.0 THE GRAPHIC USER INTERFACE

All interaction with **Incident Location Tool** is performed through the graphic user interface (GUI). The **Incident Location Tool** is designed to minimize complexities often encountered when using geographic information system (GIS) software and provide a simple way to locate crashes and other incidents. The interface consists of a **Map Window,** an **Inset Map**, **Command Buttons**, a **Scale Bar**, a **Menu Bar**, and a **Status Bar** (Figure 2.1). Users should at least be familiar with the **Command Buttons**.

At the simplest level, **Incident Location Tool** only requires the use of the **Command Buttons** to locate a crash or incident. More experienced users will find other features useful for more quickly finding particular geographic areas. These features are discussed in depth within subsequent sections of this **User Manual**.

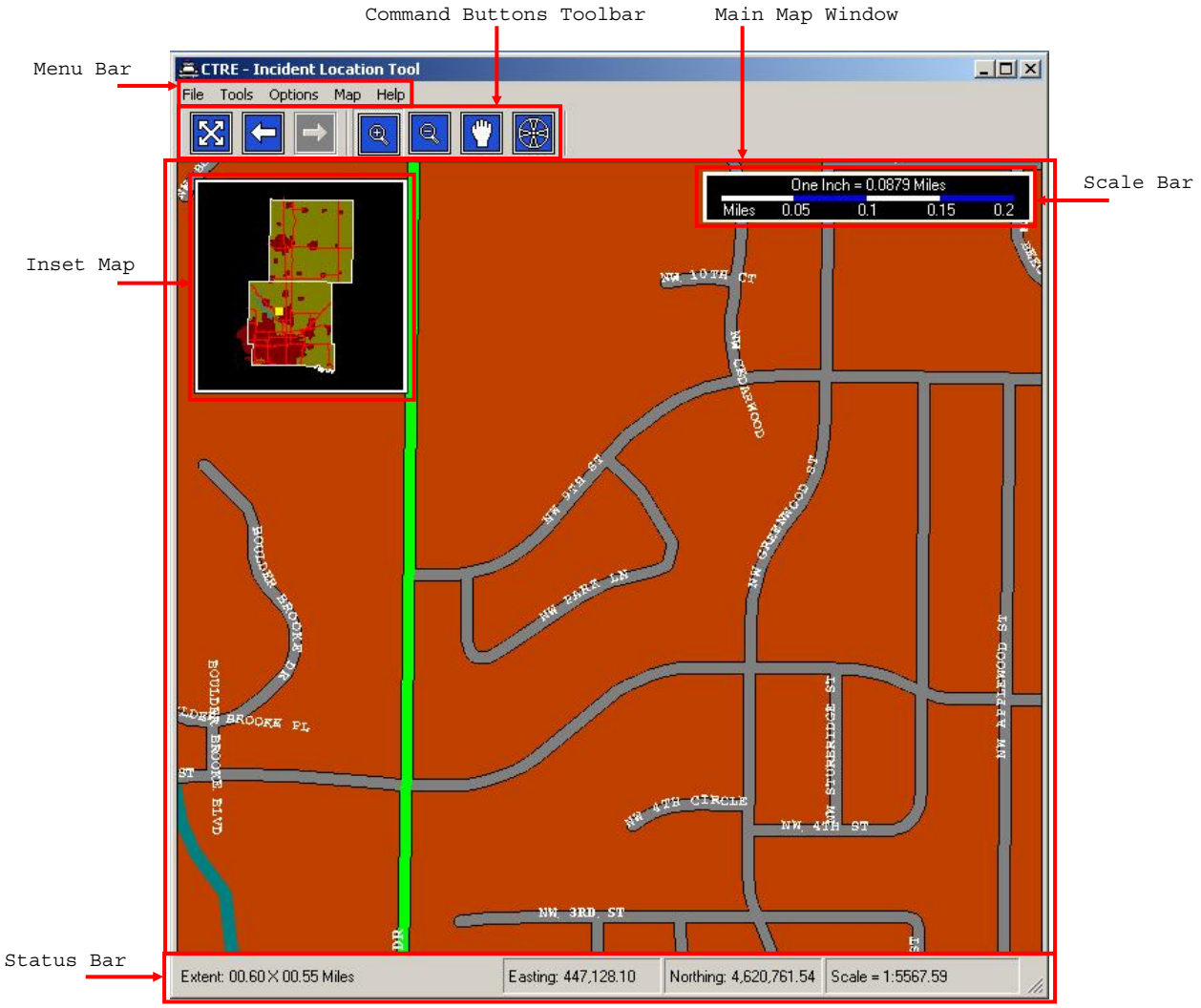


Figure 2.1 Location Tool User Interface

The following sections offer more detailed description of the interface components and their basic functions.

2.1 Command Buttons

As previously mentioned, all actions necessary to locate an incident can be accessed using the seven command buttons shown in Figure 2.2. Six of the seven buttons perform specific map operations.

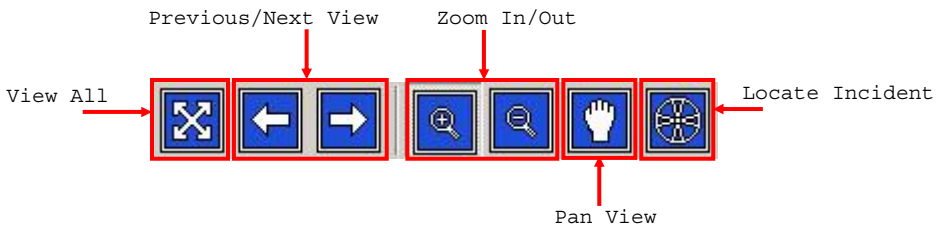


Figure 2.2 Command Button Toolbar

2.1.1 View All

Pressing the **View All** button displays the **Map Window's** full extent. At this level, not much detail is shown in the **Map Window**. More detailed map information is displayed to the user as the **Map Window** is zoomed to a subset of its entire extent. Operate by clicking with the left mouse button. When the **Map Window** is at full extent this button is disabled.

2.1.2 Previous/Next View

Incident Location Tool saves the extent of the **Map Window** as the map view changes. Pressing the **Previous** or **Next** buttons will show the previous or next map view held in the extent collection. Operate by clicking with the left mouse button. These buttons disable when the current map extent shown is the first or last in the collection. This functionality is exactly similar to that of **Forward** and **Back** buttons common to web browser software.

2.1.3 Zoom In and Zoom Out

These buttons allow a user to manipulate the map extent with the mouse. Operate by clicking with the left mouse button. With **Zoom In** enabled, holding down the left mouse button will draw a rectangle indicating the desired map extent. Clicking either the **Zoom In** or **Zoom Out** once will change the map extent by a predefined amount. When the **Map Window** is at full extent the **Zoom Out** button is disabled. The **Zoom In** button is automatically selected when the **Full Extent** button is depressed.

2.1.4 Pan Map

This button also allows a user to move the **Map Window** left, right, up, or down without changing the zoom extent. Operate by clicking with the left mouse button. Once enabled, click and hold down the left mouse button on the **Map Window** and drag the mouse in the direction desired. This button is also disabled when the **Map Window** is at full extent.

2.1.5 Locate Incident

This button places **Incident Location Tool** in **Incident Location Mode**. The use of this button is described in detail in the section *Locating an Incident Using Incident Location Tool*.

2.2 Status Bar

Information about the **Map Window's** current extents and the X/Y position of the mouse cursor appears in the **Status Bar** (Figure 2.3). The current scale of the **Map Window** is also shown in the **Status Bar**. Use these tools to record specific X and Y coordinates and to know the span of the **Map Window** extent.

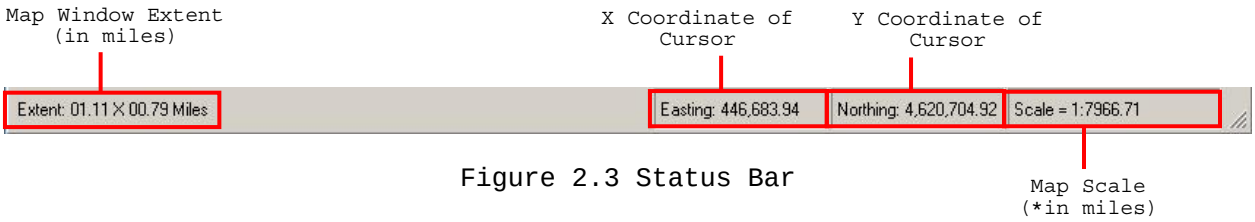


Figure 2.3 Status Bar

*Note: will change based on Scale Bar units

2.3 Menu Bar

The Incident Location Tool GUI settings and tools can be accessed using the **Menu Bar** located just above the **Command Buttons** (see Figure 2.4). The specific functions associated with each menu are detailed in the following sections.

Figure 2.4 Menu Bar

2.3.1 Menu Bar > File

This menu has three options (see Figure 2.5). Select **Save Map…** to access a dialog box allowing you to save the current map. Select **Print Map…** to access a dialog box allowing you to print the current map. To exit the software and quit locating incidents select **Exit**.

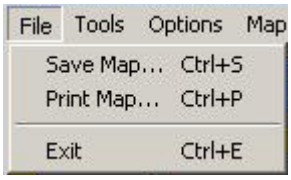


Figure 2.5 Menu Bar > File Selection

2.3.2 Menu Bar > Tools

The **Tools** menu option provides various functions assisting users (see Figure 2.6). The **Finders** option provides many tools to facilitate rapid location of specific geography. The use of each finder is detailed in section 2.5 *Finders*.

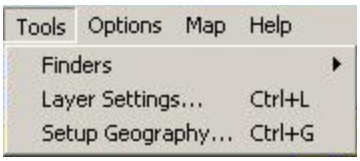


Figure 2.6 Menu Bar > Tools Selection

2.3.2.1 Layer Settings

The **Layer Settings** menu option (see Figure 2.7) allows users to change the way the various layers in the Incident Location Tool are viewed.

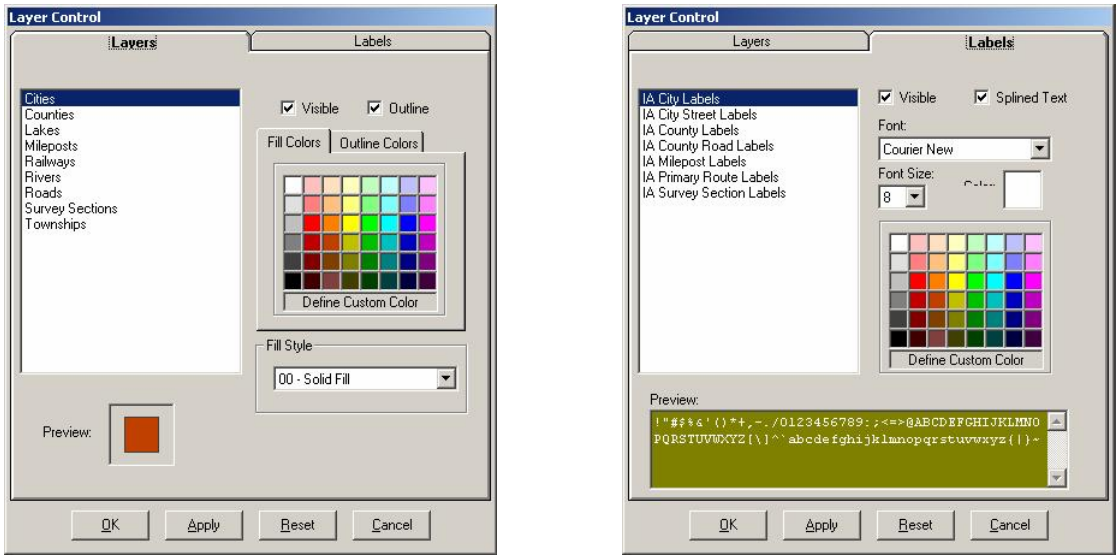


Figure 2.7 Menu Bar > Tools > Layer Settings

The **Layers** tab allows users to change the colors and visibility of the map layers in Incident Location Tool. The **Layers** tab allows users to make layers invisible by clearing the **Visible** box and allows users to specify the **Outline** color of each layer.

The **Labels** tab allows users to change the label color of map features (i.e. street names, county names, city names) in Incident Location Tool. In addition to color changes, the **Labels** tab also allows users to change font type and size. Just like the **Layers** tab, the **Labels** tab offers the option to make individual labels invisible by choosing the appropriate label and clearing the **Visible** box. One additional feature that the **Labels** tab offers is the option to have **Splined Text** (See Figure 2.8). This is accomplished by checking the **Splined Text** box for the appropriate label.

The **OK** button exits the **Layer Control** screen and saves the applied changes. The **Apply** button applies the changes that the user has made. The **Reset** button changes the settings back to those present before **Layer Settings** was accessed. The **Cancel** button allows users to exit the **Layer Control** screen without making changes.

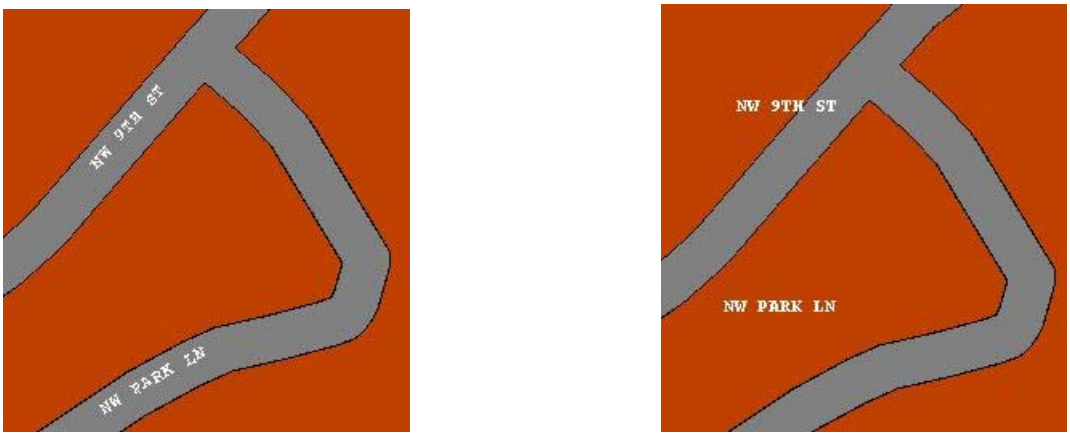


Figure 2.8 Splined Text Vs. Non-Splined Text

2.3.2.2 Setup Geography

The **Setup Geography** menu option allows the user to change the currently active region using the **Geography Configuration Map**. Detailed instructions for changing geography are located in section 1.2.2 Geography Reconfiguration

2.3.3 Menu Bar > Options

Figure 2.9 Menu Bar > Options Selection

2.3.3.1 GPS Tracking

Incident Location Tool is equipped to support direct interface with GPS equipment. This functionality enables the location of a vehicle to be displayed in the **Map Window** and allows the extent of the map to be moved as the position of the vehicle changes. **GPS Tracking** can be enabled or disabled by selecting **GPS Tracking** from under the **Options** menu (see Figure 2.10).

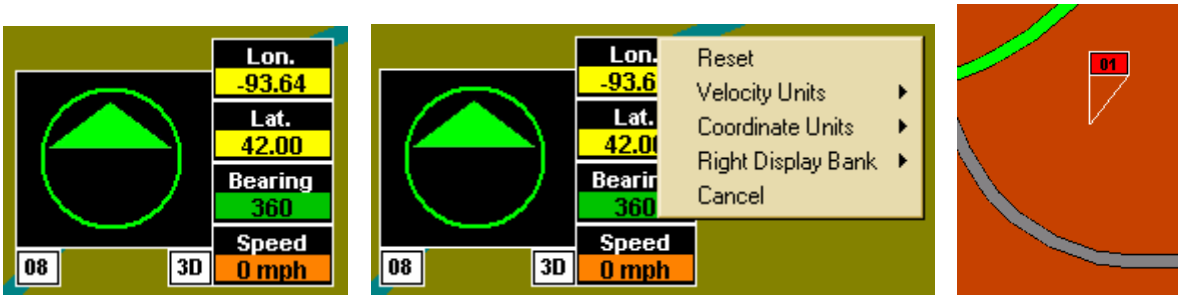


Figure 2.10 GPS Tracking Console and Locater

There are options that can be configured on the **Right Display Bank** (see Figure 2.10). There is also a locater shown on the map pointing to the current location of your signal.

2.3.3.2 GPS Settings…

Selecting **GPS Settings…** from the **Options** menu displays a dialog box allowing you to configure the **GPS Tracking** options. The **Configuration Manager – GPS Console** dialog box is shown below (see Figure 2.11). Enabling **Pop-Up Menu** allows you to access the configuration menu by right clicking on the **Right Display Bank** (see Figure 2.10).

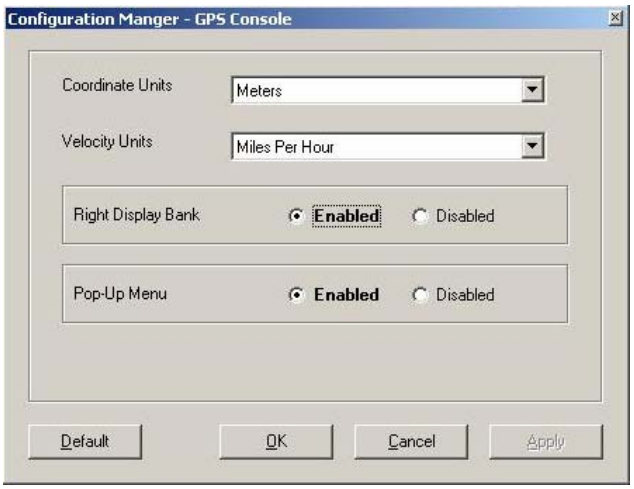


Figure 2.11 Configuration Manager – GPS Console

2.3.3.3 Scale Bar

Incident Location Tool displays a **Scale Bar** in the upper right-hand corner of the **Map Window** for reference (see Figure 2.12). The **Scale Bar** is fixed length and represents a specified distance within the map. As the map is zoomed in or out, the scale bar will update to the current map extents. Selecting **Scale Bar Settings…** from the **Options** menu will allow you to configure the **Scale Bar.**

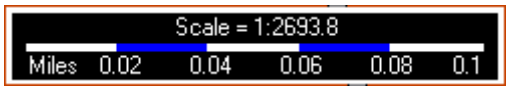


Figure 2.12 Scale Bar

2.3.3.4 Scale Bar Settings…

Selecting **Scale Bar Settings…** from the **Options** menu allows you to customize the **Scale Bar** to your preference (see Figure 2.13). When the **Scale Bar Configuration** is accessed the **Apply** button is disabled. This button becomes enabled once a change is made. The **Cancel** button will exit and change the settings to the precious **Apply** or to those present before the configuration was accessed. The **OK** button applies the changes and exits. The **Default** button changes the settings to the defaults set up for your state.

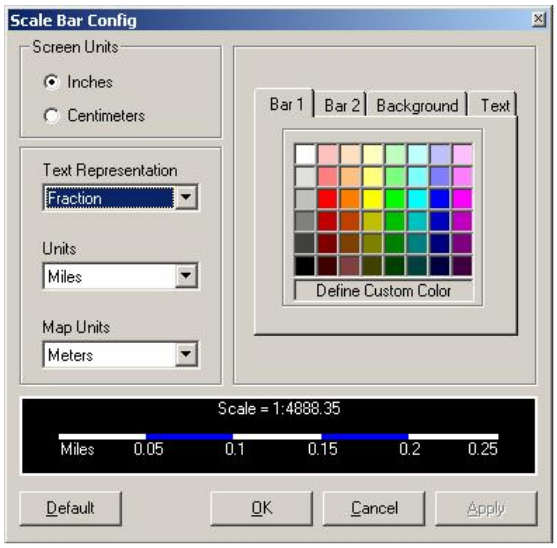


Figure 2.13 Scale Bar Configuration

2.3.3.5 The Inset Map

Selecting **Inset Map** from the **Options** menu displays a small map of the entire active region in the upper left-hand corner of the **Map Window**. Selecting **Autohide Inset Map** from the **Options** menu will turn the inset map off when the **Map Window** is at full-extent. This feature is enabled by default. The small yellow rectangle indicates the area of the currently active region displayed in the **Map Window**. Very small map extents will be displayed as a point within the **Inset Map**. Maroon colored areas of the **Inset Map** represent the location of municipalities within the active region.

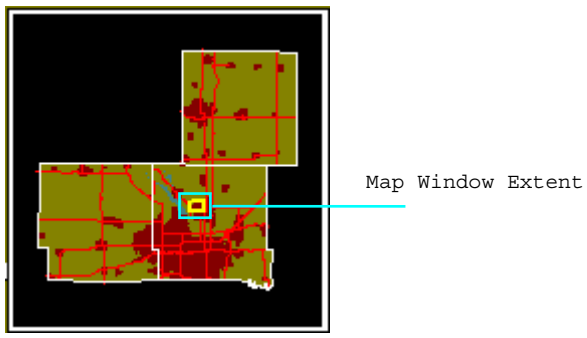


Figure 2.14 Incident Location Tool Inset Map

2.3.3.6 Map Extents

The current **Map Extent** is shown in the **Status Bar** (see Figure 2.3). Selecting **Map Extents** from the **Options** menu will toggle its visibility.

2.3.3.7 Easting and Northing

The current **Easting and Northing** of the cursor position is shown in the **Status Bar** (see Figure 2.3). Selecting **Easting and Northing** from the **Options** menu will toggle its visibility.

2.3.3.8 Map Scale

The current **Map Scale** of the **Map Window** is shown in the **Status Bar** (see Figure 2.3). Selecting **Map Scale** from the **Options** menu will toggle its visibility.

2.3.3.9 Label Finder Locations

The **Finder** tools are used to find locations on the map easily. Labels will be placed on the map allowing you to quickly find the locations found using the **Finder** tools. Selecting **Label Finder Locations** from the **Options** menu will toggle the visibility of these labels.

2.3.3.10 Clear Finder Labels

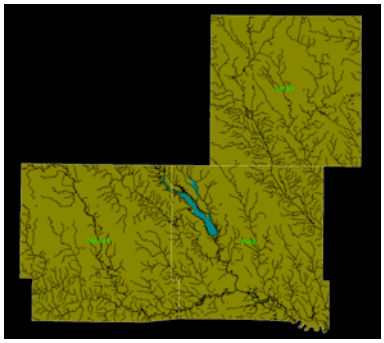
Selecting **Clear Finder Labels** will remove all previous labels from **Incident Location Tools** memory and they will no longer be available.

2.4 Map Window

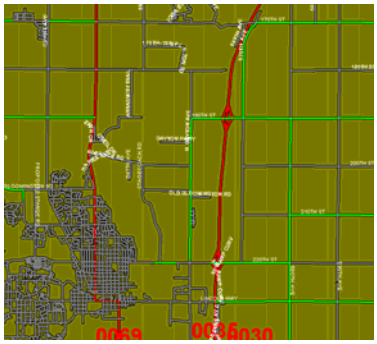
The **Map Window** of **Incident Location Tool** is the main interface point between software and user. All location operations are performed on the **Map Window**. While locations are designated on highways and streets, the **Map Window** contains other spatial data layers to assist users in finding specific map locations.

Layers will vary based on how **Incident Location Tool** is configured for your state. Layers include information concerning the location of county and corporate limits, rivers and streams, highways and streets, townships, sections, and milepost marker locations. Example layers are shown below.

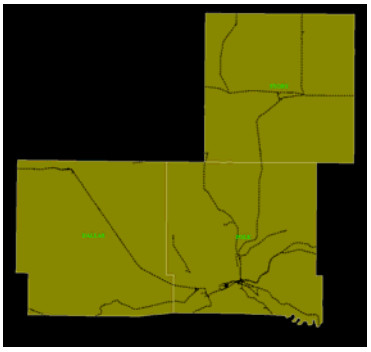
i. County and City Borders



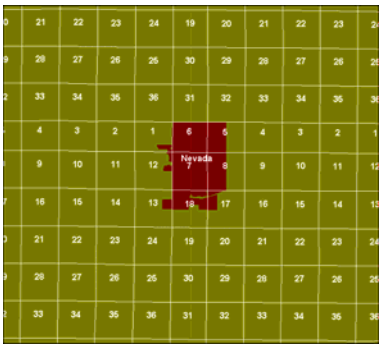
ii. Rivers and Lakes



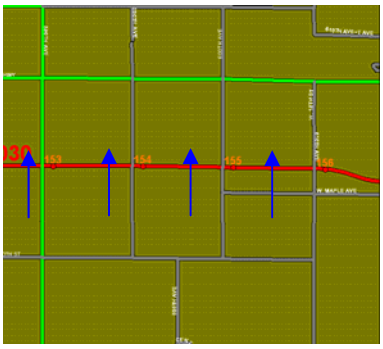
iii. Streets



iv. Railroads



v. Townships and Sections



vi. Milepost Markers

Figure 2.15 Map Layer Details

2.5 Finders

Incident Location Tool provides functionality to query specific features contained in each **Map Window** layer. **Incident Location Tool** does this through software tools called **Finders**. The functions offered by each finder are detailed below.

2.5.1 County Finder

Incident Location Tool can quickly show the extent of a particular county located in the **Map Window** using the **County Finder**. To use the **County Finder**, activate the finder by clicking on the **County Finder…** option of the **Finders** menu under the **Tools** menu. Select a specific county from the **County List**. Only counties contained in the currently active region will be listed. Click **Close** to exit the finder. Right clicking on the **Map Window** and selecting the **County Finder…** from the pop-up menu will also access this finder.

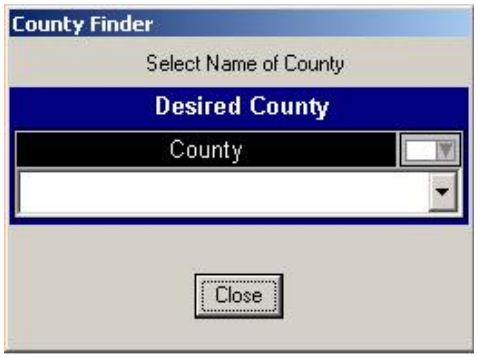


Figure 2.16 County Finder

2.5.2 City Finder

Incident Location Tool can quickly show the extent of a particular city located in the **Map Window** using the **City Finder**. To use the **City Finder**, activate the finder by clicking on the **City Finder…** option of the **Finders** menu under the **Tools** menu. First select the desired **County**. Then select a specific city from the **City List**. Only cities contained in the selected **County** will be listed. Click **Close** to exit the finder. Right clicking on the **Map Window** and selecting **City Finder…** from the pop-up menu will also access this finder.

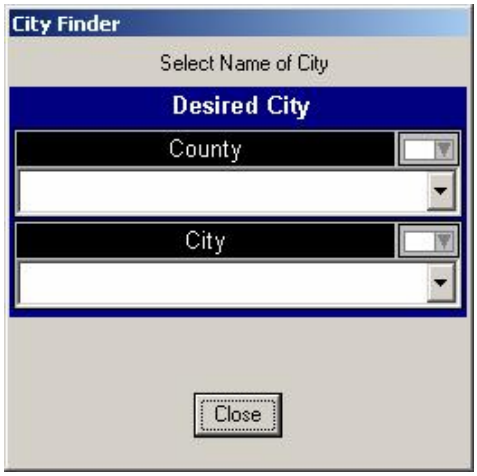


Figure 2.17 City Finder

2.5.3 Township Finder

Incident Location Tool can quickly show the extent of a particular township located in the **Map Window** using the **Township Finder**. To use the **Township Finder**, activate the finder by clicking on the **Township Finder…** option of the **Finders** menu under the **Tools** menu. First select the desired **County**. Then select a specific township from the **Township List**. Only townships contained in currently active region will be listed. Click **Close** to exit the finder. Right clicking on the **Map Window** and selecting **Township Finder…** from the pop-up menu will also access this finder.

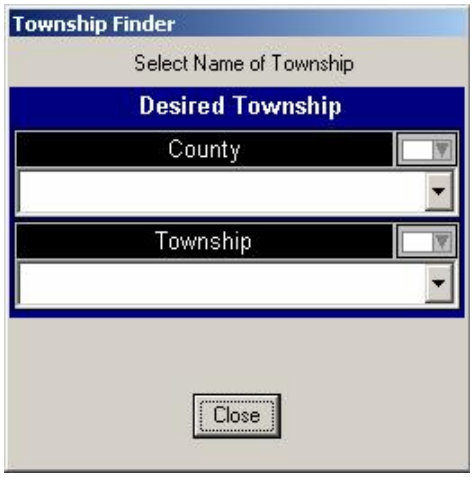


Figure 2.18 Township Finder

2.5.4 Intersection Finder

Incident Location Tool supports the lookup of roadway locations by intersection with another roadway, railroad, or stream. Three separate tools exist for each type of intersection lookup. This section will detail the use of the **Roadway Intersection Finder**. Operation of the **Railroad** or **River Intersection Finders**

will work in the same manner. Figure 2.19 shows the **Roadway Intersection Finder** and identifies its features. Each of the intersection finders is accessed from the appropriate item on the **Finder** menu under the **Tools** menu.

Each intersection finder is divided into separate **Query Sections**, each displaying a different database attribute. Intersections are located by successively narrowing the roadway features from the currently active region using the database fields found in each **Query Section**. Selecting an item from a **Query Section** automatically reloads all sections below it with a smaller subset of the entire database. For example, selecting a city name from the **City Select Query Section** will cause all **Query Sections** below it to contain items relating only to the selected city. To refill **Query Sections** with all data for the currently active region, select an item from the topmost **County Select Query Section**.

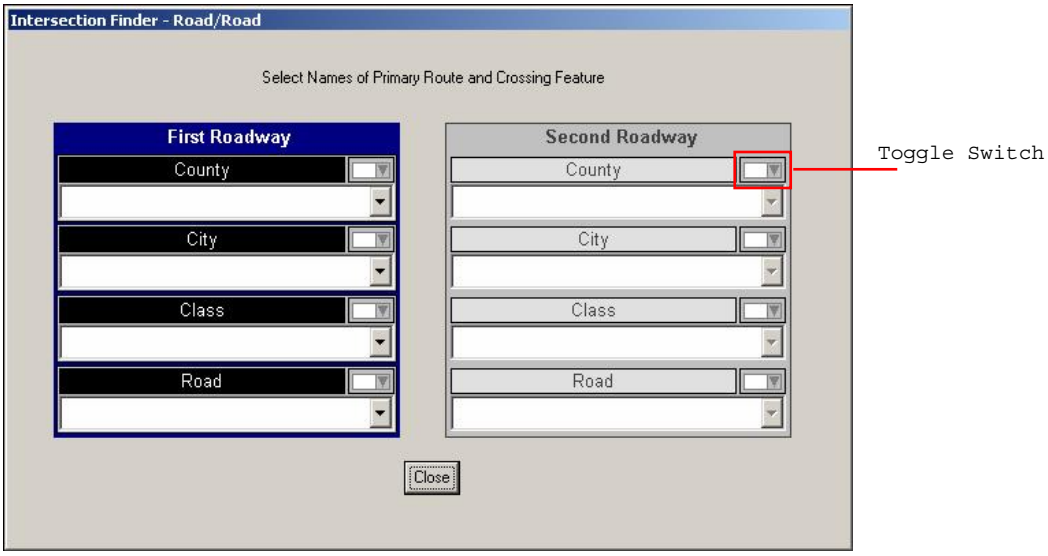


Figure 2.19 Intersection Finder for Roadways

The **Intersection Finder** supports both the selection of database item names from a **Drop-down List** and the direct key-in of item names from a **Searchbox**. The **List/Search Toggles** located on each **Query Section** of the finder switch between these modes (see Figure 2.19). The icon on each **List/Search Toggle** indicates the current mode of each **Query Section**.

Names typed in while in **Search Mode** must appear exactly the way as they appear in the database. If a name is not in the database, the search text being typed will turn red in color (see Figure 2.20). Notice the change in **Toggle Switch** icon. To see the first, most-similar text found in the database, toggle over to **List Mode**. This is useful if the text you are typing begins black but turns red after a few letters are entered. Backspacing until the letters once again turn black, and then toggling over to **List Mode**, will show the most-similar item in the database.

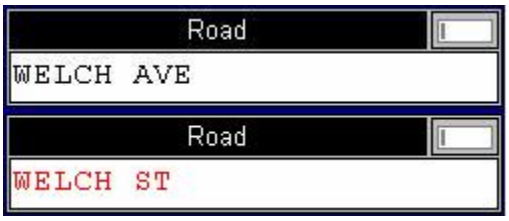


Figure 2.20 Example of valid and invalid database searches

The **Intersection Finder** automatically finds a location on the map once a valid selection is made from each **Query Section** on the **Finder**. Right clicking on the **Map Window** and selecting the appropriate **Intersection Finder** from the pop-up menu will also access the finders. The **Road/Rail** and **Road/River Intersection Finders** are shown below (see Figures 2.21 and 2.22).

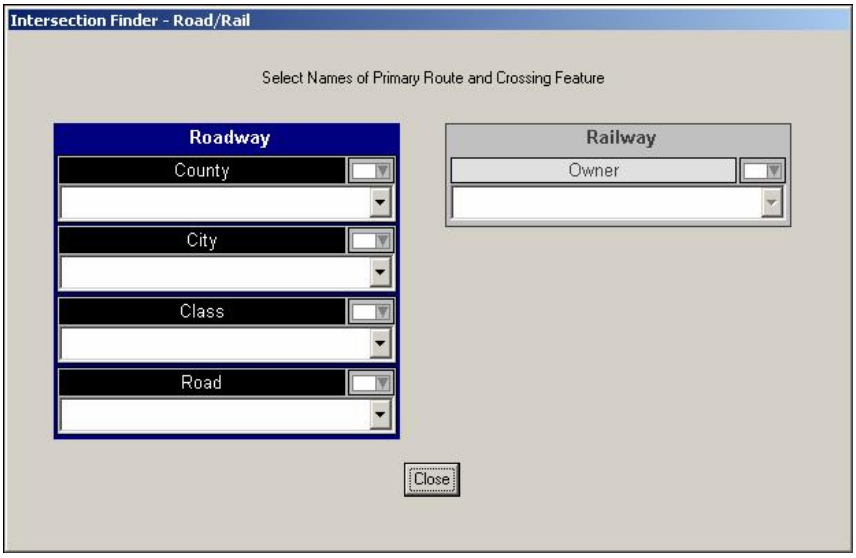


Figure 2.21 Intersection Finder for Railroads

Figure 2.22 Intersection Finder for Rivers

2.5.5 Milepost Finder

Incident Location Tool provides support for finding map locations using primary road milepost markers. To use the **Milepost Finder**, activate the finder by clicking on the **Milepost Finder…** option of the **Finders** menu under the **Tools** menu. First select the desired **County**. Then select the desired **Route**. Only milepost markers pertaining to the above two selections will be listed.

Finally, select a particular **Milepost** marker from the **Milepost List**. Click **Close** to exit the finder. Right clicking on the **Map Window** and selecting **Milepost Finder…** from the pop-up menu will also access this finder.

Figure 2.23 Location Tool Milepost Finder

2.5.6 Point Finder

Incident Location Tool provides support for finding map locations using handheld GPS equipment. The GPS unit must first be configured to output coordinate units that are from the same projection and datum as that used by the **Incident Location Tool** base map. Currently **Incident Location Tool** is using a Universal Transverse Mercator Projection and the North American 1983 Datum. All handheld GPS units tested were able to output coordinates in this projection.

To use the **Point Finder**, activate the finder by clicking on the **Point Finder…** option of the **Finders** menu under the **Tools** menu. Enter coordinates (Long/Lat or Projected NAD83) to locate by using the keyboard or the command buttons on the form. When finished, click the **Find** button using the left mouse button. To exit the finder without locating a point, click the **Close** button. Right clicking on **the Map Window** and selecting **Point Finder…** from the pop-up menu will also access this finder.

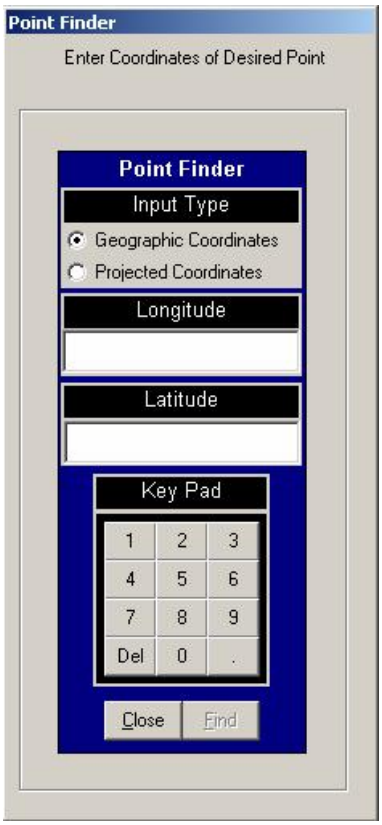


Figure 2.24 Point Finder

If the point entered is valid for the currently active region, the location entered will be centered in the **Map Window** and the map will zoom in closer to the vicinity of the entered point. If the coordinates entered do not represent a valid map point an error message will appear (Figure 2.25). Click **OK** to close the error message.

Figure 2.25 Invalid Coordinates Error Message

3.0 LOCATING AN INCIDENT USING INCIDENT LOCATION TOOL

Crashes are located in **Incident Location Tool** using the left mouse button and the **Command Button Toolbar's Locate Incident** button. The **Locate Incident** button must be depressed before a location can be designated.

Figure 3.1 Locate Incident Button

Pressing this button enables **Incident Location Mode**. While in **Incident Location Mode**, the software will dynamically label features on the **Map Window**. If the mouse cursor is near the intersection of differing streets, **Incident Location Tool** will include both street names in the dynamic label. The label displayed includes all available street designations from the roadway database. Street names can include city, county, 911, and primary route designations. **Incident Location Tool** determines which names are appropriate to display based on the DOT functional classification of each roadway.

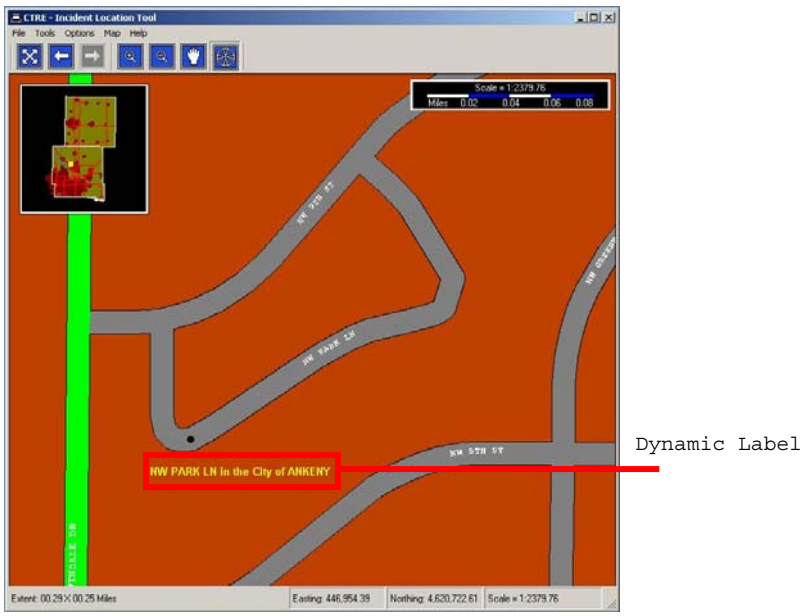


Figure 3.2 Dynamic Labeling of Highway/Street Names

3.1 Incident Placement Menu

All incident locations are designated while in **Incident Location Mode**. All location functions are accessible through a pop-up menu called the **Incident Placement Menu**. The **Incident Placement Menu** will only display when the software is placed in **Incident Location Mode**. To display the **Incident Placement Menu,** click the left mouse button while over the **Map Window**. The **Incident Placement Menu** provides access to all commands necessary for location designation. Figure 3.3 shows the **Incident Placement Menu** as it appears over the **Map Window**.

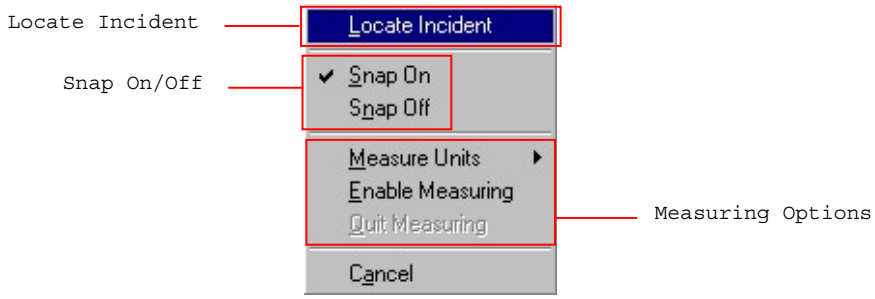


Figure 3.3 Incident Placement Menu

3.1.1 Locate Incident

This menu command controls when and where an incident location will be designated. When the mouse cursor in the **Map Window** best represents the location of the incident being identified, select the **Locate Incident** menu item to designate the crash. Several forms may appear depending on the location designated. Each possible type of scenario is discussed in detail in the section entitled *Incident Location Examples*.

3.1.1 Snap On and Snap Off

The **Snap On** and **Snap Off** menu commands control how the mouse pointer behaves during **Incident Location Mode**. If **Snap On** is enabled, movement of the mouse pointer near roadway segments in the **Map Window** will cause the mouse to 'snap' or move directly on top of the nearest line segment (see Figure 3.4). This feature is intended to ensure that locations designated using **Incident Location Tool** lie exactly on DOT centerline cartography, an important requirement for roadway safety analyses.

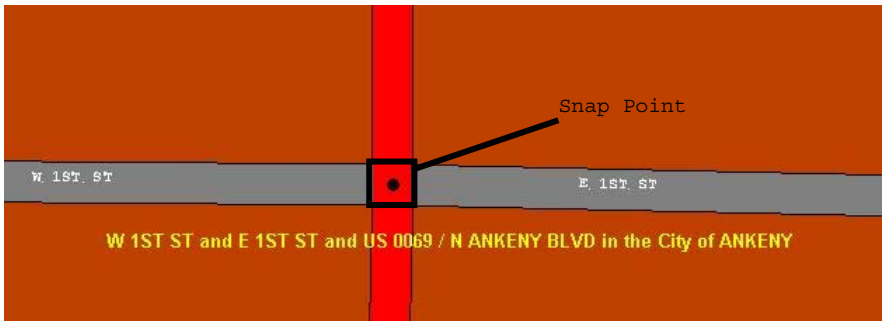


Figure 3.4 Mouse Cursor 'Snapping' to Intersection

The snap feature is enabled by default and should normally be left on. Special circumstances occur when snap may need to be disabled. These events are discussed in *Measuring an Incident Location from an Intersection* in the *Incident Location Examples* section. To disable snap, click **Snap Off**.

3.1.2 Measure Settings

The **Incident Placement Menu** provides commands for measuring distances on the **Map Window**. Menu options are available to specify the units displayed when measuring distances, and to enable or disable measuring in the **Map Window**.

Specify measure units using the **Measure Units** sub-menu. By default **Incident Location Tool** measures distances in feet. Select an alternate distance unit using the left mouse button to select an option. Measure settings persist and are not reset after the software shuts down.

Figure 3.5 Measure Unit Settings

Activate measuring by clicking **Enable Measuring** on the **Incident Placement Menu**. A black triangle will be drawn in the Map Window indicating the **Start Point** of any measures made (see Figure 3.6). A label will appear next to the mouse cursor indicating the distance of the mouse cursor from the **Start Point**. To change the distance units, use the procedure mentioned in the previous section.

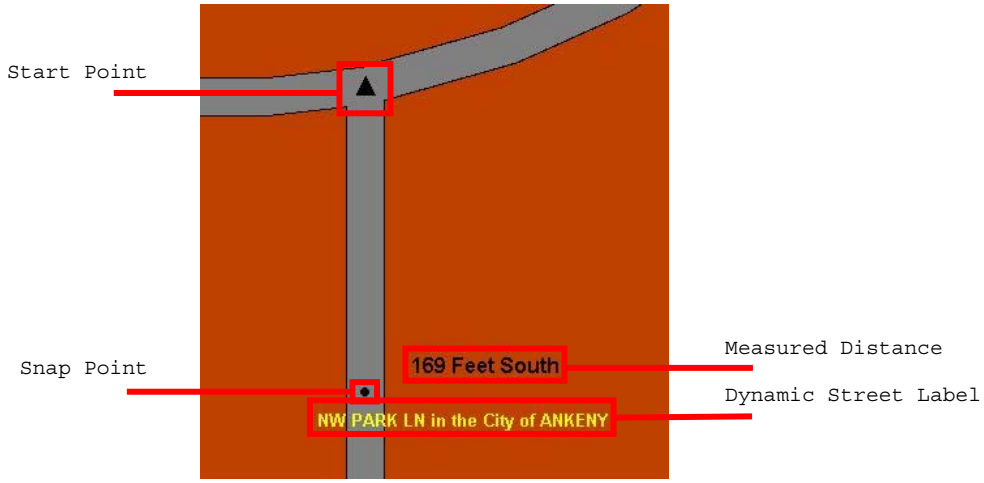


Figure 3.6 Measure Tool in use

If the cursor is near a vertex of two line segments, the **Snap** feature of the software may prevent the measuring of small distances. By Default, the **Snap** feature is disabled during measuring. If desired, reactivate **Snap** by choosing **Snap On** from the **Incident Placement Menu**.

4.0 INCIDENT LOCATION EXAMPLES

This section of the manual illustrates several examples of incident location. All of these examples were performed using either Story or Polk County in central Iowa.

4.1 Simple Incident Location Example

The first example illustrates the simplest incident location scenario. For this example, only the **Command Buttons** will be used to locate an incident with the following criteria:

- A crash located at the intersection of 9th Street and Duff Avenue in Ames.

In this example it is assumed that the incidents location is well known by the Locator. This is the most likely time when only the **Command Buttons** will be used to locate an incident. Other tools exist within the software for the designation of lesser know locations.

The first step is to find this location on the **Map Window**. Using the **Zoom In Command Button**, draw a rectangle in the approximate location; zoom again, if necessary to fill the **Map Window** with the location. Figure 4.1 shows the location as found.

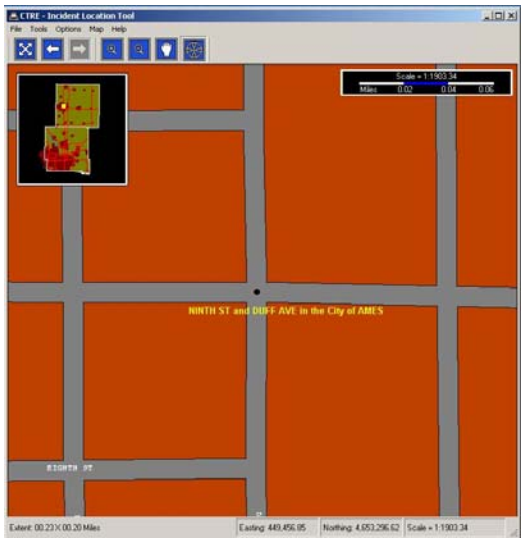


Figure 4.1 Intersection where incident occurred

Once the vicinity of the incident has been located, enter **Incident Location Mode** by clicking on the **Locate Incident** button on the **Command Button Toolbar**. To designate the location of the incident left click on the **Map Window** when the snapped cursor is exactly in the intersection and select **Locate Incident** from the **Incident Placement Menu**. A form should appear similar to the one shown in Figure 4.2. This ends the example of simple incident location.

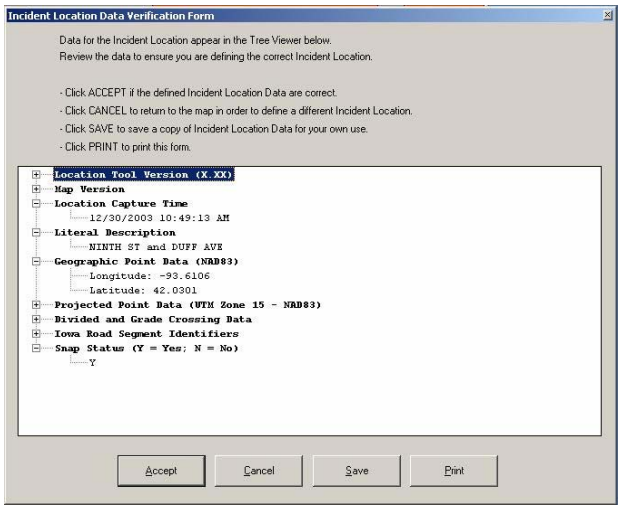

Incident Location Data Verification Form
Data for the Incident Location appear in the Tree Viewer below.
Review the data to ensure you are defining the correct Incident Location.
- Click ACCEPT if the defined Incident Location Data are correct.
- Click CANCEL to return to the map in order to define a different Incident Location.
- Click SAVE to save a copy of Incident Location Data for your own use.
- Click PRINT to print this form.
Location Tool Version (X.XX)
Map Version
Location Capture Time
12/30/2003 10:49:13 AM
Literal Description
NINTH ST and DUFF AVE
Geographic Point Data (NAD83)
Longitude: -93.6106
Latitude: 42.0301
Projected Point Data (UTM Zone 15 - NAD83)
Divided and Grade Crossing Data
Iowa Road Segment Identifiers
Snap Status (Y = Yes; N = No)
Y
Accept
Cancel
Save
Print

Figure 4.2 Results of a simple incident location

4.2 Incident Location Using a Finder

The second example illustrates a more complex incident location scenario. For this example it will be assumed that the location on the map where the incident occurred is not known, therefore a finder will be used to locate an incident with the following criteria:

- A crash located at the intersection of 1st Street and North Circle Drive in Huxley.

In this example, the **Roadway Intersection Finder** will be used to find the location. Activate the finder by selecting the appropriate finder from the **Tools** menu. First select Story County from the left hand side **County Query Section**. Select 'Huxley' from the pull-down list of cities, or enter 'Huxley' into the search box, depending on preference.

Once this is done, all streets in Huxley should be shown in the listbox of the **Name Query Section**. To further eliminate US highways from inclusion in the final query, select 'Municipal' from the listbox in the **Class Query Section**. Type 'N Circle Dr' into the **Name Query Section's** searchbox or select 'N Circle Dr' from the listbox, depending on the mode. Doing this will load only the cross streets for 'North Circle Drive' in the town of Huxley.

Finish by selecting '1st St' from the list of streets intersecting North Circle Drive. Figure 4.3 shows the results of this process.

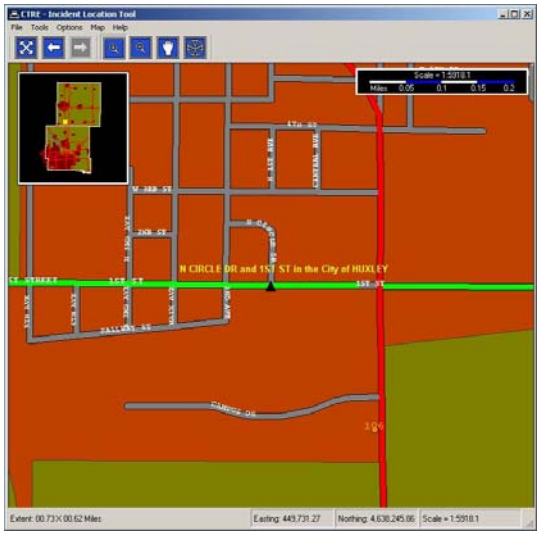

CTRE - Incident Location Tool
File Tools Options Map Help
N CIRCLE DR and 1ST ST in the City of HUXLEY
Extent: 00.73 X 00.62 Miles
Easting: 443,731.27
Northing: 4,638,245.06
Scale = 1:5918.1

Figure 4.3 Location found using Intersection Finder

Once the vicinity of the incident has been located, enter **Incident Location Mode** by clicking on the **Locate Incident** button of the **Command Button Toolbar**. To designate the location of the incident left click on the Map Window when the snapped cursor is on the intersection and select **Locate Incident** from the **Incident Placement Menu**. A form should appear similar to the one shown in Figure 4.4. This ends the example of using a finder to locate an incident.

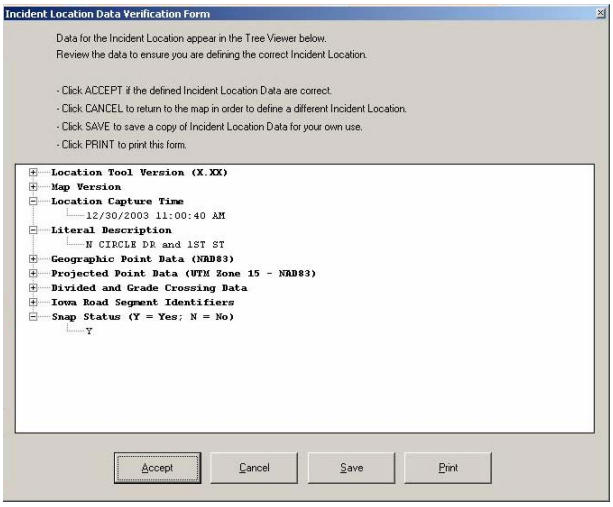

Incident Location Data Verification Form
Data for the Incident Location appear in the Tree Viewer below.
Review the data to ensure you are defining the correct Incident Location.
- Click ACCEPT if the defined Incident Location Data are correct.
- Click CANCEL to return to the map in order to define a different Incident Location.
- Click SAVE to save a copy of Incident Location Data for your own use.
- Click PRINT to print this form.
Location Tool Version (X.XX)
Map Version
Location Capture Time
12/30/2003 11:00:40 AM
Literal Description
N CIRCLE DR and 1ST ST
Geographic Point Data (NAD83)
Projected Point Data (UTM Zone 15 - NAD83)
Divided and Grade Crossing Data
Iowa Road Segment Identifiers
Snap Status (Y = Yes; N = No)
Y
Accept
Cancel
Save
Print

Figure 4.4 Results of a simple incident location

4.3 Measuring an Incident Location from an Intersection

The third example illustrates an incident location scenario where the incident occurred a known distance from an intersection. For this example, the location where the incident occurred will be the same as the previous example. The incident has the following criteria:

- A crash on 1st Street measuring 120 feet East from the intersection of 1st Street and North Circle Drive in Huxley.

Locate the intersection of 1st Street and North Circle Drive using the **Command Buttons** or a finder. Place the mouse cursor at the intersection of the two streets and left click on the **Map Window**. The Incident Placement Menu should appear as shown in Figure 4.5.

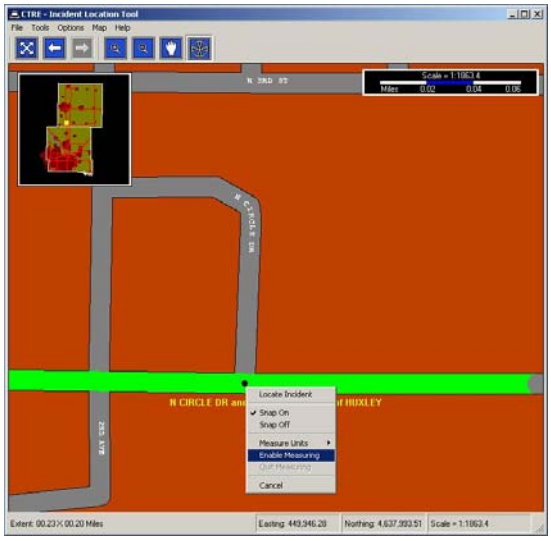


Figure 4.5 Beginning a measure operation from the Incident Placement Menu

Select **Enable Measuring** to begin measuring. Move the mouse cursor east until the distance indicates that the mouse cursor is 120 feet away from the **Start Point**. Limitations of screen resolution may prevent the actual distance of '120 Feet' being seen while measuring. If this occurs, simply select the distance best approximating the actual measured distance, or zoom the **Map Window** in closer for higher resolution. Figure 4.6 shows how close the screen resolution permitted the measuring of 120 feet.

Figure 4.6 Locating an Incident 120 Feet from an intersection

Once the appropriate distance has been measured from the intersection, right click the mouse and select the **Locate Incident** button on the **Incident Placement Menu** to designate the location. A form should appear similar to the one shown in Figure 4.7. This ends the measuring example.

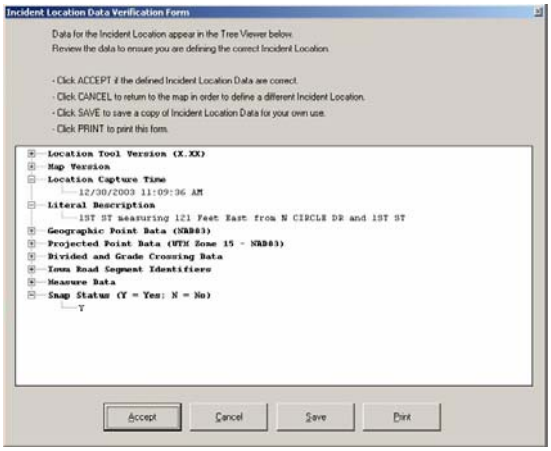

Incident Location Data Verification Form
Data for the Incident Location appear in the Tree Viewer below.
Review the data to ensure you are defining the correct Incident Location.
- Click ACCEPT if the defined Incident Location Data are correct.
- Click CANCEL to return to the map in order to define a different Incident Location.
- Click SAVE to save a copy of Incident Location Data for your own use.
- Click PRINT to print this form.
Location Tool Version (X.XX)
Map Version
Location Capture Time
12/30/2003 11:09:36 AM
Literal Description
1ST ST measuring 121 Feet East from N CIRCLE DR and 1ST ST
Geographic Point Data (NAD83)
Projected Point Data (UTM Zone 15 - NAD83)
Divided and Grade Crossing Data
Iowa Road Segment Identifiers
Measure Data
Snap Status (Y = Yes; N = No)
Y
Accept
Cancel
Save
Print

Figure 4.7 Results of a measurement from an intersection

4.4 Incident Location on a Divided Roadway

The fourth example illustrates an incident location scenario where the incident occurs on a four-lane divided highway. When an incident is placed on a divided section of roadway, the software prompts the user to indicate which set of lanes the incident occurred on (i.e. the westbound lane versus the eastbound lane). The incident has the following criteria:

- A crash in the southbound lane of Interstate 35 near mile marker 117.

Locate the scene of the incident using the **Milepost Finder**. Place the mouse cursor near the mile marker and left click on the **Map Window**. Select **Locate Incident** from **the Incident Placement Menu**. A screen should appear like that shown in Figure 4.8.

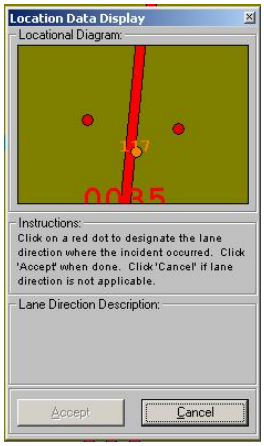

Location Data Display
Locational Diagram:
Instructions:
Click on a red dot to designate the lane direction where the incident occurred. Click 'Accept' when done. Click 'Cancel' if lane direction is not applicable.
Lane Direction Description:
Accept
Cancel

Figure 4.8 Divide highway incident placement

To designate the lane direction where the incident occurred, click one of the **red Lane Direction Marker** dots representing the side of the roadway where to incident occurred. If the incident cannot, or should not be designated in a particular lane, simply click **Cancel**, and the incident will be located following the normal procedure.

For this example, the southbound lane is represented by the red dot located at the left side of the form. Do not confuse the mile marker dot with the **Lane Direction Marker**. Click the **left Lane Direction Marker**. The screen should look similar to that of Figure 4.9. Notice the lane direction description included in the literal description of the incident.

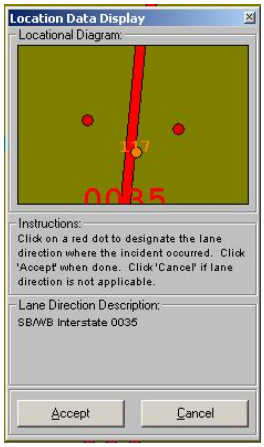

Location Data Display
Locational Diagram:
117
0035
Instructions:
Click on a red dot to designate the lane direction where the incident occurred. Click 'Accept' when done. Click 'Cancel' if lane direction is not applicable.
Lane Direction Description:
SB/WB Interstate 0035
Accept
Cancel

Figure 4.9 Selecting Lane Direction

Select the **Accept** button to finish the locating procedure. The results will be summarized in a form similar to that shown below in Figure 4.10.

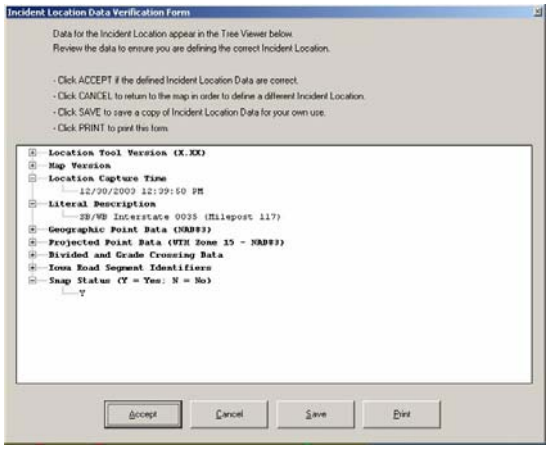

Incident Location Data Verification Form
Data for the Incident Location appear in the Tree Viewer below.
Review the data to ensure you are defining the correct Incident Location.
- Click ACCEPT if the defined Incident Location Data are correct.
- Click CANCEL to return to the map in order to define a different Incident Location.
- Click SAVE to save a copy of Incident Location Data for your own use.
- Click PRINT to print this form.
Location Tool Version (X.XX)
Map Version
Location Capture Time
12/30/2009 12:39:50 PM
Literal Description
SB/WB Interstate 0035 (Milepost 117)
Geographic Point Data (NAD83)
Projected Point Data (UTM Zone 15 - NAD83)
Divided and Grade Crossing Data
Iowa Road Segment Identifiers
Snap Status (Y = Yes; N = No)
Y
Accept
Cancel
Save
Print

Figure 4.10 Results of locating an incident on a divide facility

Do not confuse lane direction with direction of travel. It is possible for a car traveling west to be in a northbound lane. In all cases, the software can tell the lane direction from the database and the cartography, and will choose the correct lane direction, regardless of the orientation of the roadway. This concludes the example of locating an incident on a divided roadway.

4.5 Incident Location on an Overpass or Underpass

The final example illustrates an incident location scenario where the incident occurred under an overpass. When an incident is placed on an overpass, the software prompts the user to indicate whether the incident occurred on or below the overpass. The incident in this scenario has the following criteria:

- A crash on Highway 30 underpass of Interstate 35 in the eastbound lane direction.

Locate the scene of the incident using the Intersection **Finder**. **Incident Location Mode** by clicking on the **Locate Incident** button on the **Command Button Toolbar.** Move the cursor to the intersection and select **Locate Incident** from **the Incident Placement Menu**. A screen should appear similar to that shown in Figure 4.11.

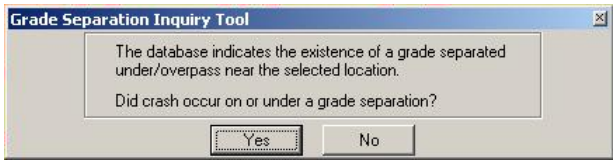

Grade Separation Inquiry Tool
The database indicates the existence of a grade separated under/overpass near the selected location.
Did crash occur on or under a grade separation?
Yes
No

Figure 4.11 Locating an Incident on an under/overpass

This screen is only indicating that conditions in the database indicate the existence of an underpass or overpass near the location of the incident. If the overpass or underpass is not directly involved in the incident, simply click **No**, and the incident will be located following normal procedures.

In this example, the incident did occur on an underpass, so click **Yes**. A form resembling Figure 4.12 will appear.

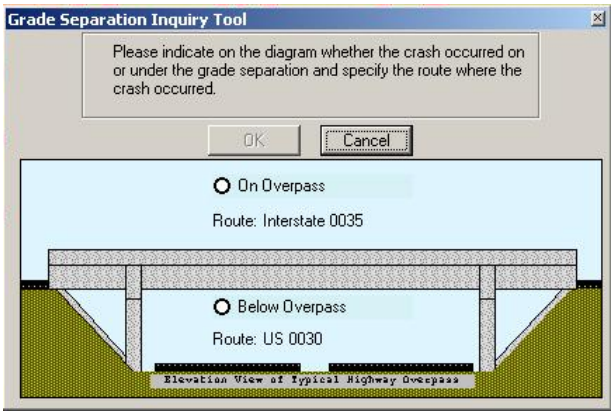

Grade Separation Inquiry Tool
Please indicate on the diagram whether the crash occurred on or under the grade separation and specify the route where the crash occurred.
OK
Cancel
On Overpass
Route: Interstate 0035
Below Overpass
Route: US 0030
Elevation View of Typical Highway Overpass

Figure 4.12 Designating the location of the incident on a grade separation

This form places the correct crossing route name on the overpass, and places the name of the feature being crossed below the overpass. Do not draw any other conclusions from the picture; it is only a representation of a typical overpass.

Click the bottom option button indicating that the crash occurred on Highway 30 and then click **Accept**. The screen should look similar to that of Figure 4.13. Notice that we must now select the land direction as was done in the previous example. Select the red **Lane Direction Marker** corresponding to the eastbound direction.

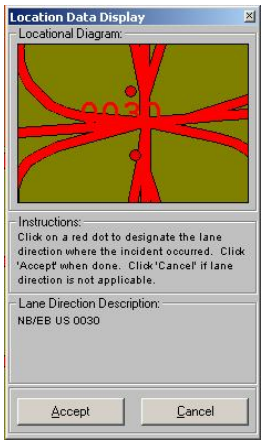

Location Data Display
Locational Diagram:
Instructions:
Click on a red dot to designate the lane direction where the incident occurred. Click 'Accept' when done. Click 'Cancel' if lane direction is not applicable.
Lane Direction Description:
NB/EB US 0030
Accept
Cancel

Figure 4.13 Selection of Lane Direction

Select the **Accept** bottom to finish location the incident. A form will appear similar to that shown in Figure 4.14. Notice the grade separation description included in the literal description of the incident. This concludes the example of locating an incident on a grade separation.

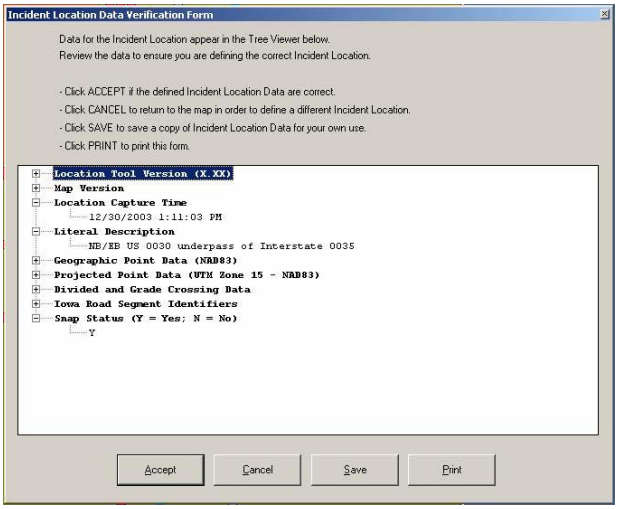

Incident Location Data Verification Form
Data for the Incident Location appear in the Tree Viewer below.
Review the data to ensure you are defining the correct Incident Location.
- Click ACCEPT if the defined Incident Location Data are correct.
- Click CANCEL to return to the map in order to define a different Incident Location.
- Click SAVE to save a copy of Incident Location Data for your own use.
- Click PRINT to print this form.
Location Tool Version (X.XX)
Map Version
Location Capture Time
12/30/2003 1:11:03 PM
Literal Description
NB/EB US 0030 underpass of Interstate 0035
Geographic Point Data (NAD83)
Projected Point Data (UTM Zone 15 - NAD83)
Divided and Grade Crossing Data
Iowa Road Segment Identifiers
Snap Status (Y = Yes; N = No)
Y
Accept
Cancel
Save
Print

Figure 4.14 Results of Overpass/Underpass Incident Location